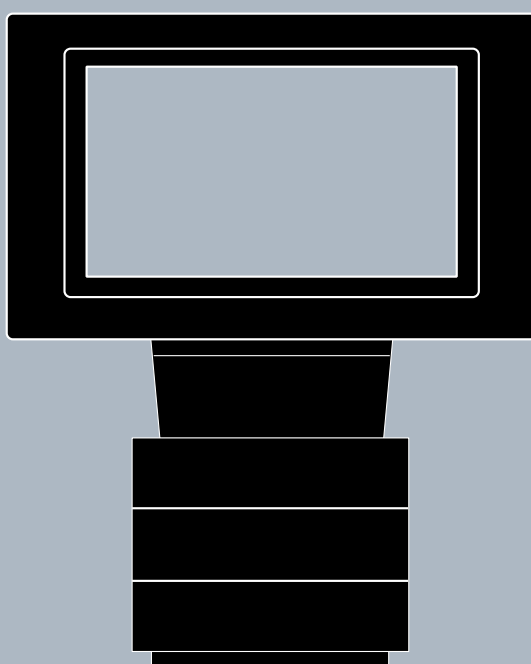


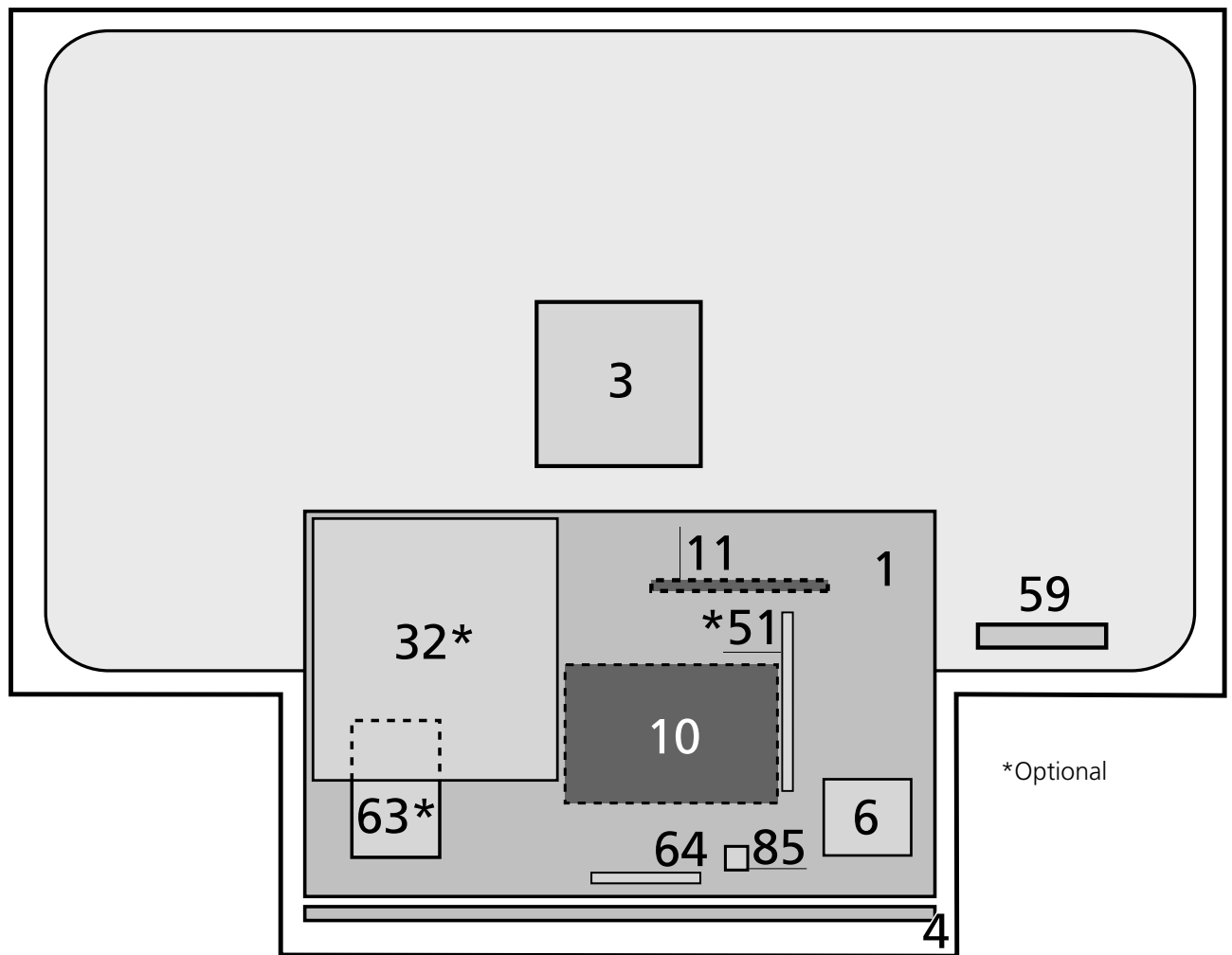
BeoVision 3 – 28

Type 8850, 8852, 8853, 8855, 8856, 8858

Service Center repair guide

English, German, French, Italian, Spanish





PCB1, PCB3, PCB4, PCB6,
PCB64, PCB85
PCB10
PCB11
PCB32*
PCB51*
PCB59
PCB63*

Main chassis, module 999
Sound output
IR Receiver
Dolby Digital Decoder (AC3)
Masterlink
Camcorder interface
Splitter & Modulator

BeoVision 3 – 28

How to service

BeoVision 3 – 28 is supposed to be serviced in the customers home!

In order to support the general service strategy, a Back-up suitcase is available which contains the TV chassis and additional modules.

With this it is possible to easily carry out service in the customers home. Feature modules are included.

If the TV chassis is replaced, leave the EEPROM in the set. The chip is located on a separate very small module.

By doing so, the entire identity of the set is maintained.

After having replaced the faulty chassis, please read out error codes, write them down and let them follow the chassis going for repair.

After that clear error codes.

Serviceanleitung

Das BeoVision 3 – 28 ist für den Service beim Kunden konzipiert!

Zur Unterstützung der allgemeinen Servicestrategie steht ein Servicekoffer zur Verfügung, der das TV-Chassis und weitere Module enthält.

Hiermit kann der Service beim Kunden einfach durchgeführt werden. Module für Spezialfunktionen sind im Koffer enthalten.

Bei Austausch des TV-Chassis muss das EEPROM im Gerät bleiben. Der Chip befindet sich auf einem sehr kleinen separaten Modul.

Durch Beibehalten des EEPROM bleiben alle gespeicherten Gerätedaten erhalten.

Nach dem Austausch des defekten Chassis bitte die Fehlercodes auslesen, notieren und dem zur Reparatur eingeschickten Chassis beilegen.

Anschließend die Fehlercodes löschen.

.

Comment effectuer la maintenance

La maintenance du BeoVision 3 – 28 est supposée être effectuée chez le client !

Afin d'assurer la stratégie de service général, une valise de sauvegarde contenant le châssis du téléviseur et des modules supplémentaires est disponible.

Ce matériel permet d'effectuer facilement l'intervention sur site chez le client. Des modules de fonction sont inclus.

En cas de remplacement du châssis du téléviseur, laisser l'EEPROM dans le téléviseur. La puce se situe sur un tout petit module séparé.

Procéder ainsi permet de maintenir l'identité intégrale du téléviseur.

Après avoir remplacé le châssis défectueux, veuillez faire une lecture des codes d'erreur, les noter et les transmettre avec le châssis envoyé pour réparation.

Ensuite, effacez les codes d'erreur.

.

Modalità dell'assistenza

BeoVision 3 – 28 è stato concepito per poter essere riparato presso il domicilio del cliente!

A sostegno della strategia generale sulla quale si basa il servizio di assistenza, viene messa a disposizione una valigetta di back-up, contenente lo chassis TV, nonché moduli supplementari.

Questa strumentazione consente di effettuare agevolmente le riparazioni, direttamente a casa del cliente. Sono compresi anche moduli per le funzioni speciali. Qualora venga sostituito lo chassis TV, occorrerà lasciare la EEPROM nel set. Il chip si trova su di un modulo molto piccolo, a parte.

Attenendosi a queste istruzioni, verrà preservata l'identità del set nel suo complesso.

Dopo aver sostituito lo chassis difettoso, leggere i codici di errore, annotarli ed allegarli allo chassis inviato in riparazione.

Cancellare quindi i codici di errore.

Cómo realizar el servicio

El servicio del BeoVision 3 – 28 se debe realizar en el domicilio del cliente.

En apoyo de la estrategia general de servicio, hay una maleta auxiliar que contiene el chasis del televisor y módulos adicionales.

De este modo, se puede realizar fácilmente el servicio en el domicilio del cliente.

Se incluyen módulos de funciones.

Si sustituye el chasis del televisor, deje la EEPROM en el aparato. El chip está ubicado en un módulo separado muy pequeño.

Haciendo esto, se mantiene la identidad total del aparato.

Después de haber sustituido el chasis defectuoso, lea los códigos de error, anótelos y adjúntelos con el chasis para su reparación.

A continuación, borre los códigos de error.

SPECIFICATION GUIDELINES FOR SERVICE USE	
BeoVision 3 – 28	
CTV system	*See type survey
Cabinet finish	Black, Grey, Blue, Yellow, Red, Green
Picture tube/Visual picture	70 cm - 28” (16:9, RF)/66 cm, Black line, Black matrix
Contrast screen	Grey glass
Vision Clear	Automatic Picture Adjustment Automtic cut-off Colour Transient Improvement Adaptive Luminance Peaking Scan Velocity Modulation Adaptive black
Operation	Beo4 remote control (included)
Menu languages	English, Danish, Dutch, Spanish, Swedish, German, French, Italian
Tuner range	45 - 860 MHz: VHF, S-band, Hyper-band, UHF
No. Of TV programmes	99, auto naming 8 Program Groups
Teletext	Improved Teletext 7 teletext character sets 9 memory pages per program
Stereo decoders	A2 + NICAM
Speakers	
Power amplifiers	2 units
Frequency range	85 - 20,000 Hz
Max. sound pressure level	94 dB
Cabinet principle/Net. Volume	Bass reflex/2.1 litres
Full range	90 mm (3½”)
Bass equalizer	Adaptive
Magnetic shielded	Yes
Stand turning function	±35 degrees, remote operated
Dolby® Digital Decoder	
Decoding capabilities	Dolby® Digital 5.1 channel decoding Dolby® Pro-Logic decoding of two channel Dolby® Digital Dolby® Pro-Logic decoding of two channel PCM Dolby® Pro-Logic decoding of two analogue channels (Lt/Rt) Automatic format detection(Dolby® Digital, PCM)
Calibration	3 channel Tone control & loudness (L/C/R) Bass management, Delay management
Sound modes (Speaker 1 - 5)	Speaker 1 : Stereo internal speakers(Subwoofer muted) Speaker 2 2.0/2.1 : Stereo external speakers / Stereo external speakers + Subwoofer Speaker 3 3.0/3.1 : Dolby®-3 stereo / Dolby®-3 stereo + Subwoofer Speaker 4 4.0/4.1 : Stereo-4 / Stereo-4 + Subwoofer Speaker 5 5.0/5.1 : Dolby® Digital or Dolby® Pro-Logic Surround / Dolby® Digital + Subwoofer
Connections	
Digital audio input	2 x Coax phono, Input-1 & 2
External BeoLab speakers	5 x Power Link (Left, Right, Rear left, Rear right, Subwoofer Internal Center)

System modulator	
	Splitter/System modulator output to Link Room (BeoLink Video Distribution)
Frequency range	479 - 831 MHz (in 1 MHz step), Dual side band
Video	No Automatic Gain Control
Audio	Mono
	According to type : FM sound system G : 5.5MHz, FM sound system I : 6MHz
Connection	1 x 75 ohm aerial male
Optional	
Digital Surround Sound (AC-3/DTS)	4005
Modulator system B/G	4016
Modulator system I	4018
Master Link module	4015
Contrast screen, Antireflex coated	Only available ex. Factory
Videostand	4068
Motorised Base (for Videostand)	4066
Motorised Base (for TV)	4179
Dimensions W x H x D/Weight	85 x 70 x 52 cm/45 kg
Power consumption	Typical 115 watts, St By 0.5 watts
CONNECTIONS	
MASTER LINK	
	Pin 1 Data- -0.4V \pm 0.1V
	Pin 2 Data+ +0.4V \pm 0.1V
	Pin 3 ML sense
	Pin 4-8 N.C.
	Pin 9 ATI transmit
	Pin 10 ATI receive
	Pin 11 -supply voltage -7V to -15V (in St By -3V to -15V)
	Pin 12 +supply voltage +7V to +15V (in St By +3V to +15V)
	Pin 13 Audio -L 1V Bal, Rin 2.2Mohms, Rout 75ohms
	Pin 14 Audio +L 1V Bal, Rin 2.2Mohms, Rout 75ohms
	Pin 15 Audio -R 1V Bal, Rin 2.2Mohms, Rout 75ohms
	Pin 16 Audio +R 1V Bal, Rin 2.2Mohms, Rout 75ohms
POWER LINK (Power Link & AC3 modules)	
	Pin 1 PL ON => 2.5V, OFF =< 0.5V
	Pin 2 Signal GND
	Pin 3 α Audio L out 0V - 6.5V RMS
	Pin 4 PL speaker ON => 2.5V, OFF =< 0.5V
	Pin 5 α Audio R out 0V - 6.5V RMS
	Pin 6 Data: High >3.5V, Low <0.8V
	Pin 7 Data GND
	Pin 8 Not used
α = Pin 5 is connected to pin 3 in the SUBWOOFER socket.	
INPUT 1 & 2 (AC3)	
	S/P DIF Digital signal input

Subject to change without notice

*TYPE SURVEY			Modification to other TV transmission systems		
Type	System		B/G	B/G/L/L'/I/D/K	B/G/I/M/D/K
8850	B/G	EU		8053015	8053016
8858	B/G/L/L'/I	F (GB)		1*	8053016
8853	I	GB	1*	1*	8053016
8852	I/M/D/K	HK	2*	8053015	2*
8855	B/G	AUS		8053015	8053016
8856	B/G/D/K	East EU		1*	8053016

All types mentioned are equipped with PAL/SECAM/NTSC colour decoder.

8053016 TV chassis system B/G/I/M/D/K. Can be setup to systems B/G, M, D/K and I in service mode.

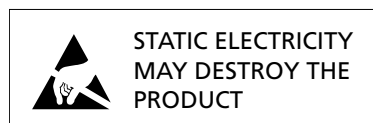
8053015 TV chassis system B/G/L/L'/I/D/K. Can be setup to systems B/G, L/L', D/K and I in service mode.

1* Can be setup to systems B/G, L/L', D/K and I in service mode.

2* Can be setup to systems B/G, M, D/K and I in service mode.

Modification to other TV systems either by means of chassis exchange or set up in service mode, there might be limitations in functionality, if the TV is fitted with Modulator system G or I.

Cautions



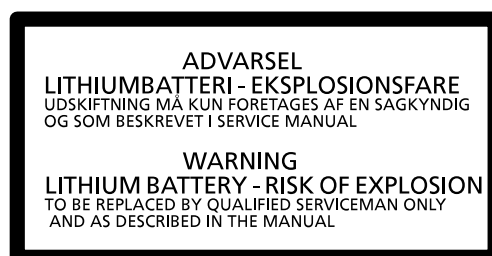
Static electricity may destroy the product!

A static-protective field service kit must always be used when replacement of the modules takes place.

Please note:

When mains voltage on the TV is required, remove the connection from the TV to the ESD mat.

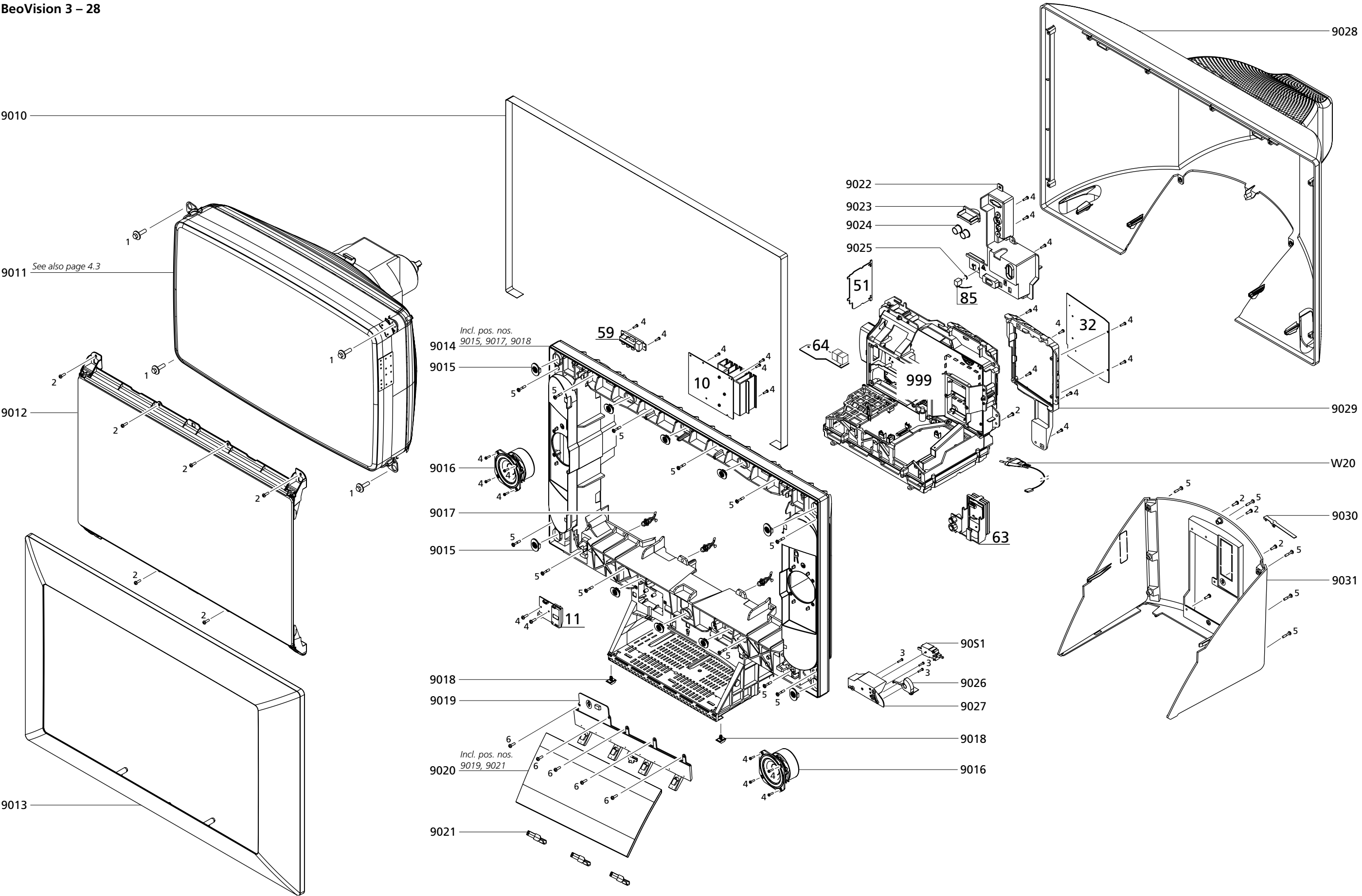
Lithium battery



WARNING

Short-circuit and overcharging of some types of lithium batteries may result in a violent explosion.

Available parts
BeoVision 3 – 28



BeoVision 3 – 28

9010	2734000	Profile
9011	8200134	Picture tube
9012	3451040	Antireflex coated contrast screen
	3451066	Contrast screen without antireflex
9013	1604121	Speaker cover, yellow
	1604123	Speaker cover, green
	1604124	Speaker cover, red
	1604126	Speaker cover, black
	1604128	Speaker cover, blue
	1604129	Speaker cover, grey
9014	3320067	Frame incl. pos. nos. 9015, 9017, 9018
9015	3151669	Bushing x 10
9016	8480000	Speaker, fullrange
9017	2515063	Wire holder
9018	3103403	Rubber foot x 4
9019	3322032	IR display
9020	3451017	Front plate incl. pos. nos. 9019, 9021
9021	3151716	Hook f/front plate
9022	3160249	Cover f/socketpanel
9023	3162778	Cover f/Masterlink
9024	3341059	Cover f/Powerlink
9025	2380145	Nut f/PCB85
9026	2776680	Button f/mains switch
9027	3300157	Bracket f/mains switch
9028	3431448	Back cover, upper
9029	3169292	Holder f/PCB32
9030	3152641	Wire holder
9031	3431447	Back cover, lower

90S1▲ 7450100 Mains switch

W20	6100325	Mains lead w/filter
	6100404	Mains lead GB
	6100248	Mains lead AUS

6Module	PCB6, Main microcomputer
6IC3&6IC4	8344300 SW EPROM
6IC6	8343712 EEPROM

PCB6 Main microcomputer is not available as spare part

10Module 8000043 PCB10, Sound Output

11Module 8000044 PCB11. IR Receiver

32Module	8000910	PCB32, Dolby Digital Decoder (AC3)
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51Module 8000882 PCB51, Masterlink

59Module 8000886 PCB59, Camcorder Interface

63Module	8000521	PCB63, Splitter & Modulator system BG
	8000522	PCB63, Splitter & Modulator system I

64Module 8000921 PCB64, Powerlink

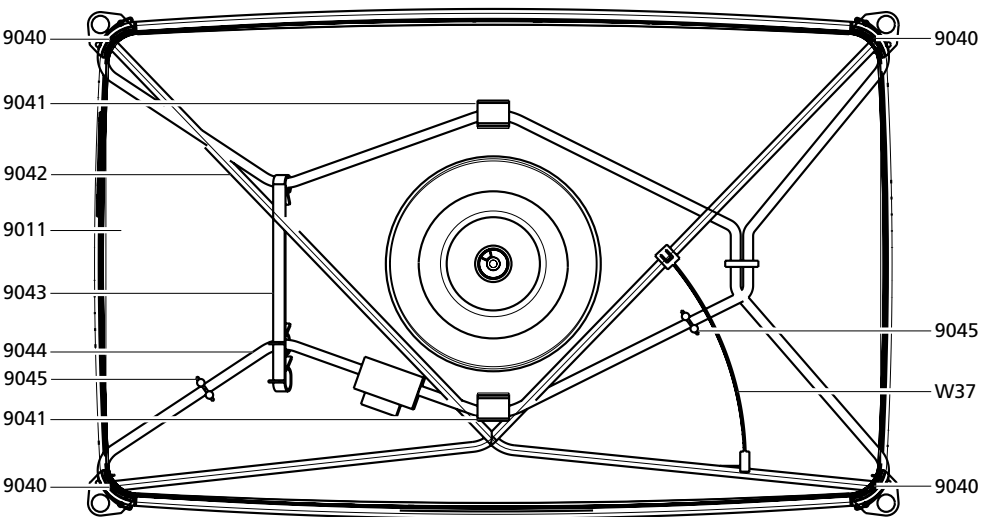
85Module 8008922 PCB85, Minijack f/STB-Controller

999Module	Main chassis consist of PCB1, PCB3, PCB4, PCB6, PCB64, PCB85
8053014	Main chassis, system B/G
8053015	Main chassis, system B/G/L/L'/I/D/K
8053016	Main chassis, system B/G/M/I/D/K/L

Survey of screws and washers

1	2052048	Screw 7 x 25mm w/washer
2	2019021	Screw 4 x 12mm
3	2015144	Screw 3.5 x 12mm
4	2013137	Screw 3 x 10mm
5	2015176	Screw 4 x 20mm

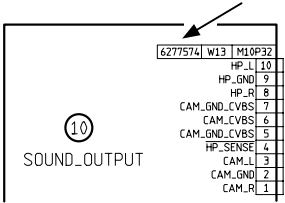
Picture tube



9011	8200134	Picture tube
9040	3151752	Spring f/degaussing coil
9041	3151736	Self-adhesive holder for degaussing coil
9042	7510052	Ground current
9043	3151673	Holder f/degaussing coil
9044	8022382	Degaussing coil
9045	3152178	Wire holder
W37	6032951	Ground wire

Wire bundles

See wiring diagram page 3.1.
The part no. is printed on the diagram above the wire bundle, as shown.



Parts not shown

3375422	Product cover
3395228	Back-up suitcase, system B/G
3395229	Back-up suitcase, system B/G/L/L'/I/D/K
3395230	Back-up suitcase, system B/G/M/I/D/K/L

Beo4

9002	2776627	Set of buttons
	2776628	Set of buttons, type 1625 (I)
9003	8001806	PCB
9006	8700017	Battery, Alkaline

All other parts see service manual part no. 3538840

ServiceTool

3658949	ServiceTool CD-ROM
3375397	Cable kit for ServiceTool, complete
	Cable kit consists of:
6270857	Main cable
6270852	Cable D-SUB-Jack
6277439	Wire, 3 pole
8008922	Minijack f/STB-Controller

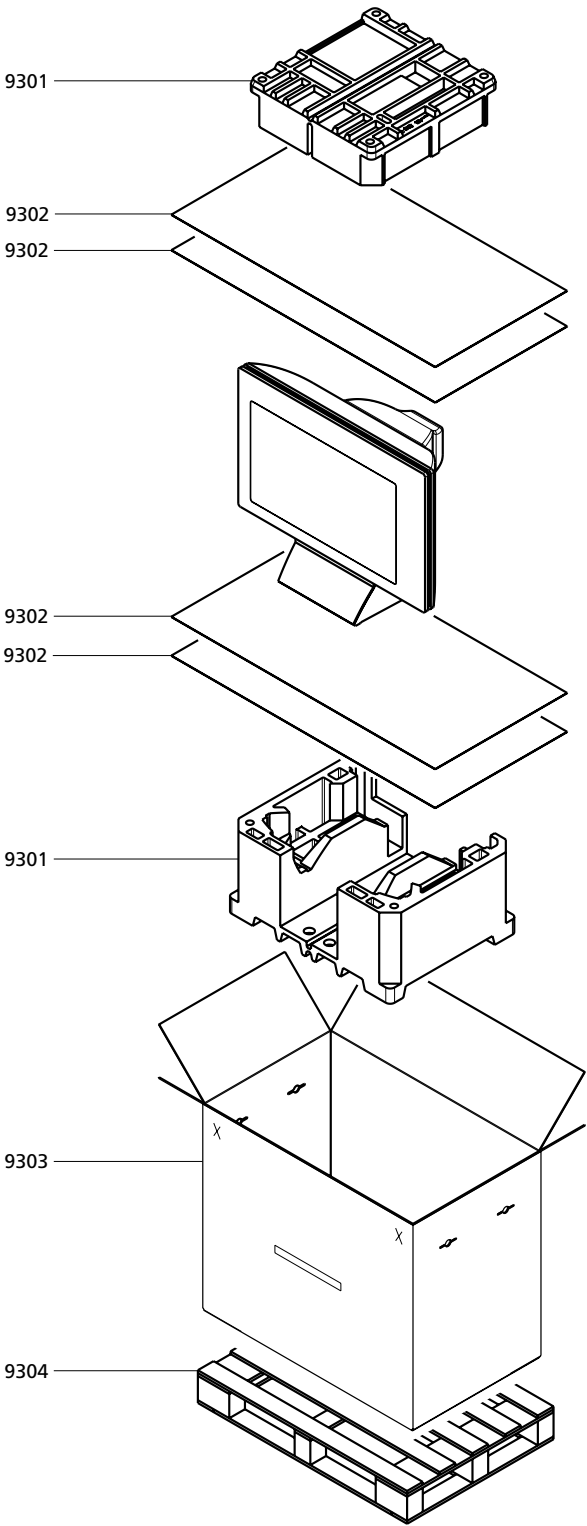
Accessories

See specification guidelines page 1.5

Available documentation

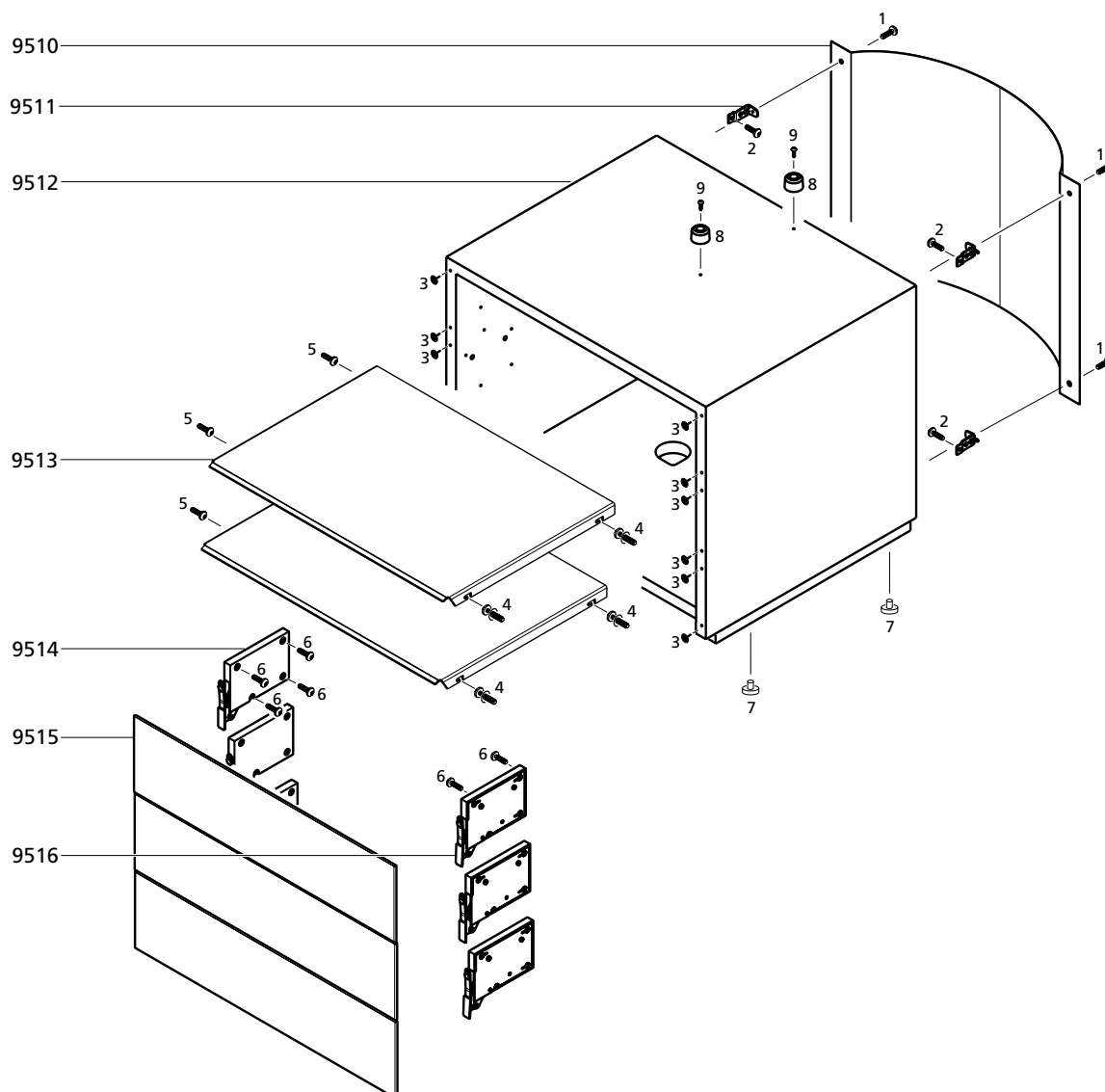
3543401 On-site service guide
English, German, French, Italian, Spanish, Danish, Dutch
Guides and Reference book, please see Retail Ordering System

Packing



9301	3396123	Foam packing, set of top and bottom
9302	3917105	Foam foil
9303	3392693	Outer carton
9304	3392023	Wooden pallet
	3392024	Wooden pallet AUS

Videostand 4068

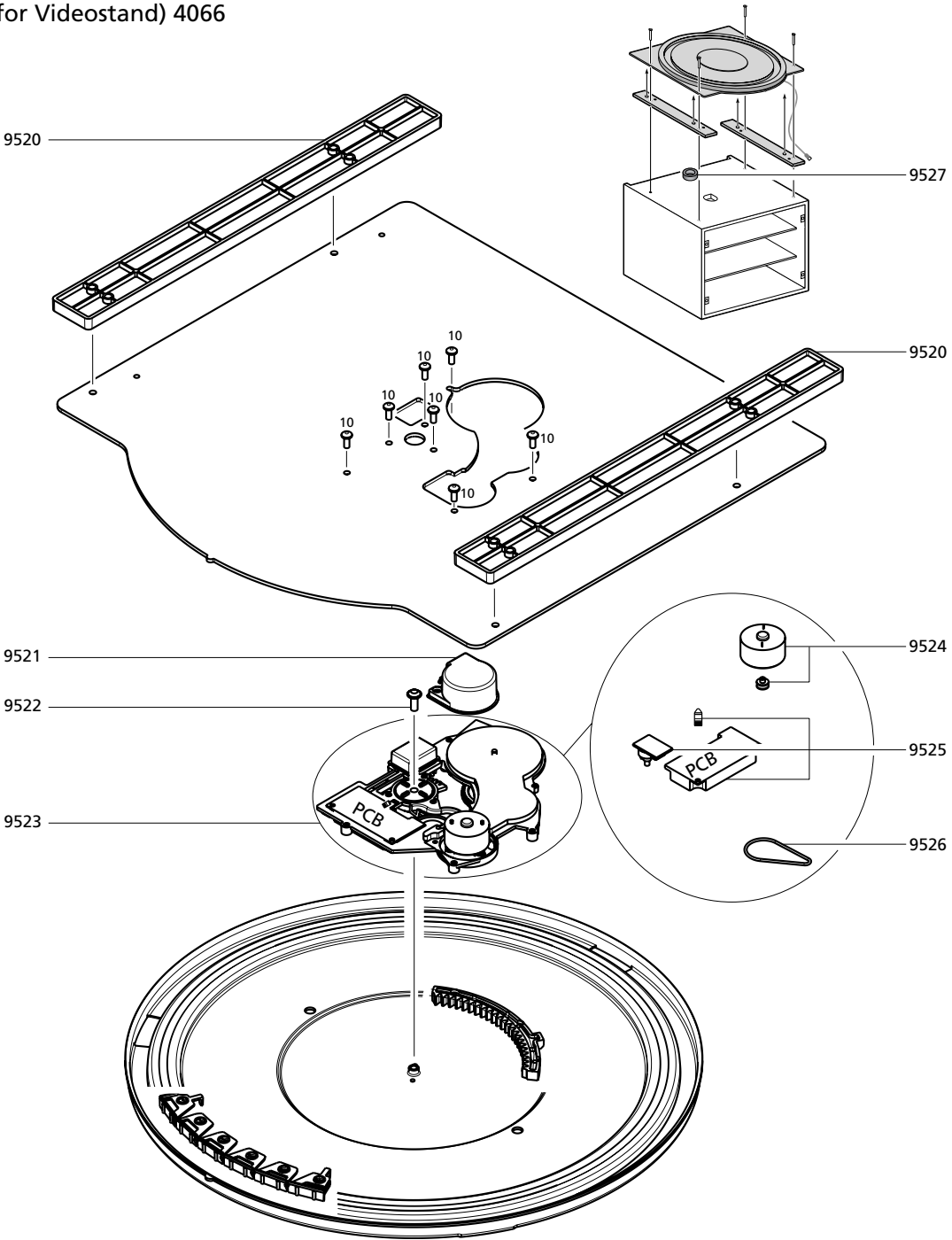


9510	1407566	Cable cover
9511	3152946	Bracket
9512	3414328	Cabinet incl. pos. nos. 2, 3, 7, 8, 9 and 9511
9513	3901251	Shelf, 1 pcs.
9514	3030158	Hinge, left
9515	3451779	Front, 1 pcs.
9516	3030157	Hinge, right

1	2052002	Screw 5 x 27mm
2	2019021	Screw 4 x 12mm
3	3010007	Rubber foot f/front
4	2013261	Screw f/shelf
5	2019021	Screw 4 x 12mm
6	2015163	Screw 4 x 20mm
7	3035032	Foot
8	2990064	Rubber bushing
9	2015163	Screw 4 x 20mm

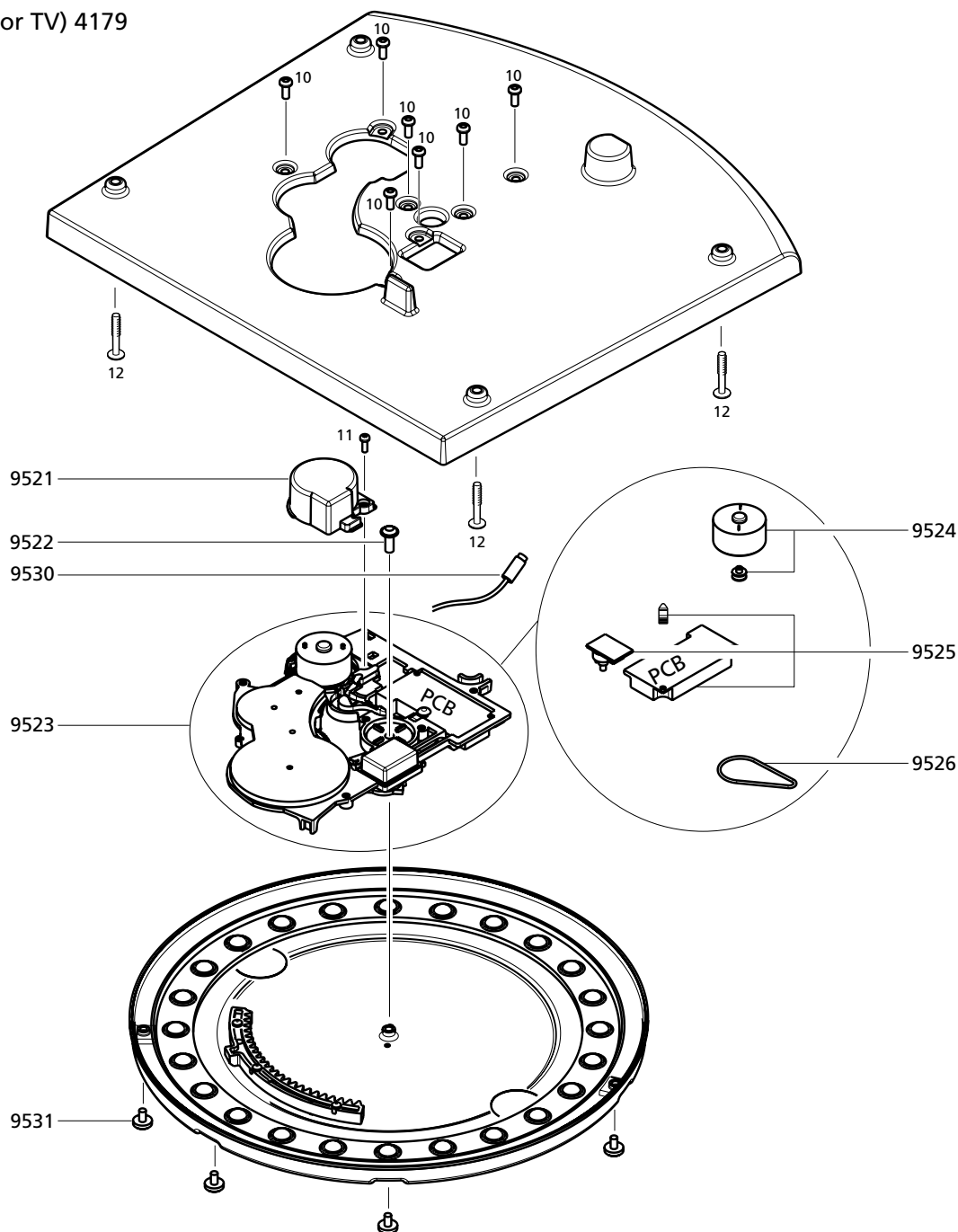
3504736	Guide
3396211	Foam packing
3392786	Outer carton
3392768	Wooden pallet

Motorised Base (for Videostand) 4066



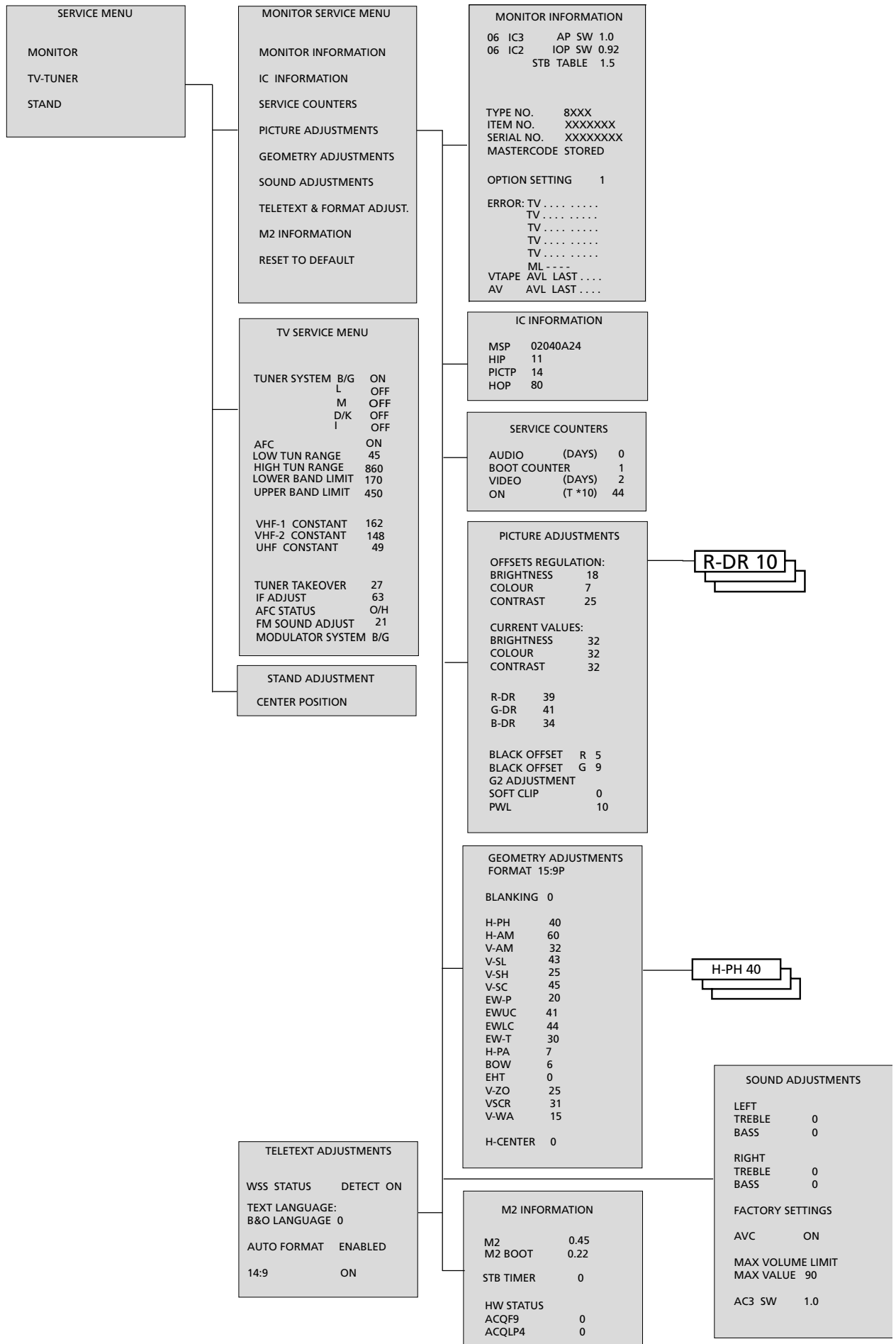
9520	2576358	Spacer
9521	3114495	Cover f/motor
9522	2052050	Screw 5 x 13mm
9523	2755069	Gear, complete
9524	8400239	Motor
9525	8052740	PCB f/motor
9526	2732156	Belt
9527	3103416	Rubber foot
10	2019020	Screw 4 x 10mm
	3504735	Guide
	6270862	Wire DIN 5 pole
	3396207	Foam packing - order 2 pcs.
	3392782	Outer carton

Motorised Base (for TV) 4179



9521	3114495	Cover f/motor
9522	2052050	Screw 5 x 13mm
9523	2755069	Gear, complete
9524	8400239	Motor
9525	8052740	PCB f/motor
9526	2732156	Belt
9530	6270876	Wire DIN 5 pole
9531	3103392	Foot
10	2019020	Screw 4 x 10mm
11	2013144	Screw 3 x 8mm
12	2021012	Screw 5 x 25mm
	3504735	Guide
	3390669	Bag w/cable binders, pos.nos. 12, 9031
	3396242	Foam packing - order 2 pcs.
	3917000	Foam foil
	3392782	Outer carton

Service Menu



Adjustments

Adjustments described:
 Tuner Takeover, IF- and Sound adjust
 Stand adjustment, optional module
 Picture adjustments
 Geometry adjustments
 Sound adjustments, no adjustment possible

Scope of Adjustments

The content in the adjustment instructions is the following:

- contains text and illustrations if needed
- the correct sequence for the adjusting the product
- the correct procedure for the adjustment

Illustration of:

- geometry parameters
- geometry measuring points
- special tools needed for the adjustment

General considerations

Picture adjustments

Brightness, Contrast and Colour can only be adjusted in the Menu – Options – Picture.

The service menu does not give this opportunity.

Measurements

All measurements concerning the geometry are measured without the contrast screen mounted.

Measurements are performed with a ruler directly on the picture tube.

All measurements are measured from the phosphors edge, unless other is specified.

For the best result, measurements are performed in a straight angle to the picture tube, e.g. you see into the reflection of your own eye.

Geometry must be checked and adjusted in format

FORMAT 1, 15:9

FORMAT 1 (panoramic), 16:9

FORMAT 3, 16:9

Preparations before geometry checking and adjustment

1. Dismount the contrast screen and holder for the contrast screen.
2. Dismount the front plate, for access to potentiometer.
3. Cover the auto contrast.
4. Turn TV on.
5. TV must warm up for minimum 5 min before adjustment may be performed.
6. Select the correct test picture.
7. Set TV in correct FORMAT.

Adjustment procedure and sequence:

1. Horizontal adjustment.
2. G2 adjustment.
3. Focus adjustment.
4. Vertical adjustment.
5. FORMAT 1, 15:9 adjustment.
6. FORMAT 1, 16:9 adjustment.
7. FORMAT 3, 16:9 adjustment.

Finishing procedure

8. Clean the picture tube.
9. Clean the contrast screen.
10. Remount the contrast screen.

Picture formats

Please refer to the user guide for full explanation.

BeoVision 3 – 28 provides the opportunity to choose from three different picture formats by means of the Beo4 remote control.

FORMAT 1

For standard TV pictures. Two variations are available: 15:9 and Panoramic view (for the largest view).

Press ◀ or ▶ to select variations of this format.

Panoramic view is the default choice.

FORMAT 1 – 14:9

This format is only available via the service menu and on request of the customer.

FORMAT 2

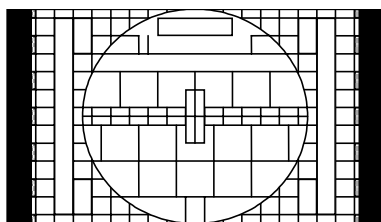
For letter-box pictures. When you select FORMAT 2, the picture is automatically adjusted vertically. This ensure that channel names or subtitles- if these appear in the broadcasted picture – can be seen.

Press up or down to move the picture up and down.

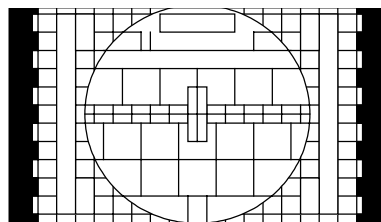
FORMAT 3

For 16:9 widescreen pictures. FORMAT 3 is usually selected automatically. If this is not the case, you can select it yourself.

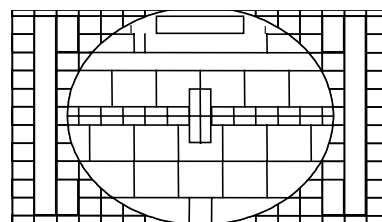
Format 1 - 14:9



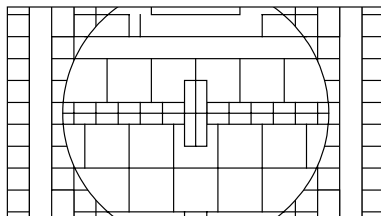
Format 1 - 15:9



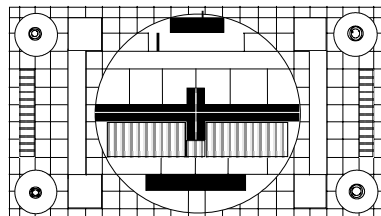
Format 1 - 16:9 panoramic



Format 2 - Letterbox



Format 3 - 16:9



Access to Service Mode

Select a SETUP menu.

Beo4: Press **0 0 GO** within 3 seconds.

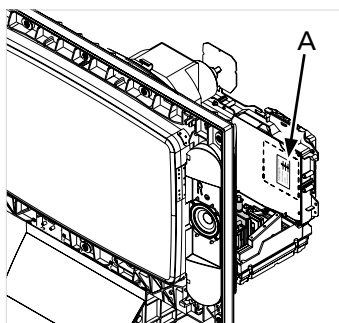
Select ordinary menu operation to leave Service Mode.

Operation in Service Mode.

Beo4	Activity
EXIT	Removes the menus
GO	<ul style="list-style-type: none"> - Selects the sub menu to the menu line where the cursor is placed - Stores the selected values and returns to the SERVICE MENU - Deletes error codes in the MONITOR INFORMATION menu and returns to the SERVICE MENU
▲	Moves the cursor up and returns to the previous menu
▼	Moves the cursor down and selects a sub menu in special occasions
◀ ▶	Selects new values in the menus and selects a sub menu in special occasions

The EEPROM must be transferred to the chassis in the product, hereby maintaining the customer settings, eg. connections, picture, sound, etc.

Adjust Tuner takeover, IF adjust and FM sound adjust



- The values (A) written on the label placed on PCB1, have to be written into the EEPROM (6IC6).
- Enter SETUP, select SERVICEMODE with **0, 0, GO**. Press the button combination within 3 seconds. Highlight TV-TUNER, select with **GO**. Change the settings by means of **◀** and **▶** until they match the values on the label. Then press **GO** to store the settings.

Exit Service Mode.

Stand (Only TV with motorised stand)

The scope of this adjustment is to determine the center position.

The adjustment must be performed in the following situations:

- the motorised stand is connected to the television.
- the main chassis has been replaced.
- the EEPROM (6IC6) has been replaced.

Adjustment procedure

1. Enter the SERVICE MENU and select STAND.
2. Press **GO**, when CALIBRATION OK is displayed, the center position of the motorised stand is found.

Picture adjustment

Default values, do not change

OFFSET REGULATION:
 BRIGHTNESS 19
 COLOUR 25
 CONTRAST 8

 SOFT CLIP 0
 PWL 10

Adjustable values

R-DR
 G-DR
 B-DR

BLACK OFFSET R
 BLACK OFFSET G
 G2 adjustment refer to geometry adjustments

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Middle position (32)	Middle position (32)

Check default settings:

OFFSETS REGULATIONS
 Brightness
 Contrast
 Colour
 Soft Clip
 PWL

White level:

Adjust R-DR, G-DR and B-DR to correct white level.

Grey level – system PAL/NTSC

Connect a PAL signal to the TV and adjust BLACK OFFSET R and BLACK OFFSET G to correct grey level.

Grey level – system SECAM

Connect a SECAM signal to the TV and adjust BLACK OFFSET R and BLACK OFFSET G to correct grey level.

Geometry adjustments

Default values from factory

		FORMAT 1 15:9	FORMAT 1 16:9	FORMAT 3 16:9
H-PH	Horizontal phase			
H-AM	Horizontal amplitude			
V-AM	Vertical amplitude			
V-SL	Vertical slope			
V-SH	Vertical shift			
V-SC	Vertical S-correction	22	22	22
EW-P	EW parable			
EWUC	EW upper corner			
EWLC	EW lower corner			
EW-T	EW trapezium			
H-PA	Horizontal parallelogram			
BOW	Horizontal bow			
EHT	Horizontal EHT sensitivity Do not change this value	0	0	0
V-ZO	Vertical zoom Do not change this value	25	25	25
VSCR	Vertical scroll Do not change this value	33	33	31
V-WA	Vertical wait Do not change this value	14	14	14
H-CENTER	Horizontal center			

Initial settings in order to adjust the TV

Access to potentiometers, G2 and FOCUS

It is recommended to gain access to the potentiometer by removing the front plate.

Connections

Enter SETUP – CONNECTIONS

Set V.TAPE to V.TAPE

Set AV to none

Press **GO** and then **EXIT** to leave the menu.

Recommended test tape:

6780000,

15 min test picture format 16:9

15 min test picture format 4:3

H-Center, Horizontal Center

Setup

TV-mode V.TAPE
 Format 16 :9, format 3
 Test picture 16:9 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Middle position (32)	Middle position (32)

Adjustment parameters

H-AM Horizontal amplitude.
 H-Center Horizontal center.
 H-PH Horizontal phase.

Adjustment procedure

1. Adjust H-AM until the picture fills the phosphorus area.
 2. Adjust H-CENTER until distance AB = CD within 2 mm.
 3. Adjust H-PH for centring the picture.
- Repeat step 2 and 3 if necessary.

G2 (cut off) adjustment

Setup

TV-mode V.TAPE / CAMCORDER
 Format 16 :9, format 3
 Test picture No picture applied
 – no V.TAPE connected

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Middle position (32)	Middle position (32)

Access to SCREEN potentiometer, see ➤3, page 7.2

Remove the front plate, remember the ground cord.
 The potentiometer can now be accessed from the front.

Adjustment procedure

Adjust the SCREEN potentiometer until the Standby LED turns green.
 (red = G2 to high, yellow = G2 to low, green = G2 ok.)

Focus

Setup

TV-mode V.TAPE
 Format 16 :9, format 3
 Test picture 16:9 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Max position (62)	Middle position (32)

Access to SCREEN potentiometer, see ➤3, page 7.2

Remove the front plate, remember the ground cord.
 The potentiometer can now be accessed from the front.

Adjustment procedure:

- 1. Cover the display panel e.g. with a soft cloth to prevent light adjusting the contrast.
- 2. Adjust Picture contrast to max (62).
- 3. Adjust FOCUS 1, Vertical line no 2 in the right side.
- 4. Adjust FOCUS 2, Horizontal line no 3 from the top.
Repeat step 3 and 4 minimum twice, always ending with horizontal, FOCUS 2.
- 5. Adjust Picture contrast to 32.

V-SH, Vertical Shift

Setup

TV-mode V.TAPE
Format 16 :9, format 3
Test picture 16:9 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Position (32)	Middle position (32)

Adjustment procedure

- 1. Press - SERVICE MENU - MONITOR – GEOMETRY ADJUSTMENTS
- 2. Select BLANKING 1 press **GO**
- 3. Press **▶▶**, sets BLANKING ON
- 4. Adjust V-SH until blanking is covering up to the vertical center \pm 1mm, 162 mm from top/bottom of the phosphor edge.
- 5. Press **▶▶**, sets BLANKING OFF
- 6. Press **GO** to leave the leave the function

The value for V-SH is used in all formats.

Geometry in Format 1, 15:9

Setup

TV-mode V.TAPE
 Format 15:9, format 1
 Test picture 4:3 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Position (32)	Middle position (32)

Illustrations for geometry parameter settings, see page 9.1

Adjustment procedure

1. V-AM Adjust EI = 10.0 ± 1.5 mm
2. V-SL Adjust NG = 13.6 ± 1.5 mm
3. H-PH Adjust HQ = TF ± 2.0 mm
4. H-AM Adjust HQ = TF = 20.6 ± 2.5 mm

EW adjustments might have to be performed more than one time in order to obtain the optimum result.

EW-P East/West Parabola

Adjust for straight line between A to D and B to C.
 Pay special attention to the middle 2/3 part of the line.

EWUC East/West Upper corner

Adjust for straight line in the upper ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EWLC East/West lower corner

Adjust for straight line in the lower ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EW-T East/West Trapezium

Adjust distance A to W + B to X = Z to D + C to Y, or distance A to B = D to C.

H-PA Horizontal parallelogram

Adjust distance A to W = Z to D and distance B to X = C to Y.

BOW Horizontal bow

Adjust for straight line A to D and B to C.

Geometry in Format 1, 16:9

Setup

TV-mode V.TAPE
 Format 4:3, format 1
 Test picture 4:3 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Position (32)	Middle position (32)

Illustrations for geometry parameter settings, see page 9.1

Adjustment procedure

1. V-AM Adjust EI = 10.0 ± 1.5 mm
2. V-SL Adjust NG = 13.6 ± 1.5 mm
3. H-PH Adjust HQ = TF ± 2.0 mm
4. H-AM Adjust HQ = TF = 38 ± 2.5 mm

EW adjustments might have to be performed more than one time in order to obtain the optimum result.

EW-P East/West Parabola

Adjust for straight line between A to D and B to C.
 Pay special attention to the middle 2/3 part of the line.

EWUC East/West Upper corner

Adjust for straight line in the upper ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EWLC East/West lower corner

Adjust for straight line in the lower ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EW-T East/West Trapezium

Adjust distance A to W + B to X = Z to D + C to Y, or distance A to B = D to C.

H-PA Horizontal parallelogram

Adjust distance A to W = Z to D and distance B to X = C to Y.

BOW Horizontal bow

Adjust for straight line A to D and B to C.

Geometry in Format 3, 16:9

Setup

TV-mode V.TAPE
 Format 16:9, format 1
 Test picture 16:9 test picture

Picture setting (TV – MENU – OPTIONS – PICTURE)

Brightness	Contrast	Colour
Middle position (32)	Position (32)	Middle position (32)

Illustrations for geometry parameter settings, see page 9.1

Adjustment procedure

1. V-AM Adjust EI = 10.0 ± 1.5 mm
2. V-SL Adjust NG = 10.0 ± 1.5 mm
3. H-PH Adjust HQ = TF ± 2.0 mm
4. H-AM Adjust HQ = TF = 21 ± 2.5 mm

EW adjustments might have to be performed more than one time in order to obtain the optimum result.

EW-P East/West Parabola

Adjust for straight line between A to D and B to C.
 Pay special attention to the middle 2/3 part of the line.

EWUC East/West Upper corner

Adjust for straight line in the upper ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EWLC East/West lower corner

Adjust for straight line in the lower ¼ of the line A to D and B to C.
 Compare to the middle 2/3 part of the line.

EW-T East/West Trapezium

Adjust distance A to W + B to X = Z to D + C to Y, or distance A to B = D to C.

H-PA Horizontal parallelogram

Adjust distance A to W = Z to D and distance B to X = C to Y.

BOW Horizontal bow

Adjust for straight line A to D and B to C.

Service Mode

The Service Mode consists of two parts: Service menu and ignore mode. On page 5.1 see an overview of the Service Mode menus, and operation in Service Mode.

SERVICE MENU

The STAND line is only shown if the TV is fitted with motorized stand. The function is described in the section on adjustments.

MONITOR SERVICE MENU

The PICTURE ADJUSTMENTS and GEOMETRY ADJUSTMENTS lines are described in the section on adjustments.

MONITOR INFORMATION

- Software version numbers
The "STB TABLE 1.0" line shows the version of conversion of set top box remote control codes into Beo4 codes.
- Type, item and serial numbers
- PIN-code status. Shows if the Master code is correctly entered (STORED/NOT STORED)
- Option programming
- Latest five TV errors
- Latest ML error
- Latest AVL error from the V.TAPE and AV sockets

OPTION SETTING

Option 0 = The IR receiver of the TV is disconnected.

Option 1 = The TV and the Audio system (BeoLink system) are placed in the same room.

Option 2 = The TV and the Audio system (BeoLink system) are placed in different rooms.

Option 4 = Two TV's in the same room and the TV's are not linked together.

Option 5 = The TV and the Audio system (BeoLink system) are placed in the same link room.

Option 6 = The TV is the only product in the link room.

ERROR:TV

The TV is able to detect certain types of error and display them on the screen.

The five latest TV errors are shown as error codes and displayed with the month/date (four digits) as provided by the system clock. The most recent error is displayed at the top. As the TV has no hardware clock the displayed month/date will not be correct, but can be used to see if more errors have occurred at the same date.

The following TV error types can be displayed:

...	No error registered
DF	Data failure
POR1	Power on reset failure 1
POR2	Power on reset failure 2
PDD	Power down detected failure
XX-YZ	(XX = IIC address Y = IIC bus 1 or bus 2 Z = any IIC bus segment A/B/C/D)

ML error codes are for detection of errors in the Master Link system.

...	No error registered
CI	Address configuration impossible
TD	ML data pulled down
TU	ML data pulled up
??	Other undefinable error possibilities
NH	No Hardware. There is no Master Link PCB in the TV

AVL error codes from the V.TAPE and AV sockets

...	No error registered
TI	Transmission impossible
TD	Data link tied down

Motorized stand error codes

ST-01	Calibration error too few positions
ST-02	Calibration error too many positions
ST-03	Calibration error EEPROM
ST-04	Calibration error transducer
ST-05	Calibration error position

After repair of an error that has triggered the display of an error code, the error code has to be deleted. This is done by pressing **GO** in the MONITOR INFORMATION menu.

IIC bus error

An IIC bus error means that the communication on the bus fails when the microcomputer tries to communicate with the address in question.

In most cases this means that the addressed IC is defective but the defect could also be in one of the components surrounding the IC or in other components on the bus. Addresses in connection with IIC bus errors:

IC	Function	On modes	Adr	Clock	BUS
1IC100 TDA9321H	Colour decoder & IF (HIP)	AV	8A	100 kHz	IIC-2A
1TU1 CTF5510	TV tuner	V	C0	100 kHz	IIC-2A
1IC200 SDA6000	M2 Processor	AV	22	400 kHz	IIC-2D
63IC1 TDA8722M	Modulator	AV	C8	100 kHz	IIC-2A
64IC2 TDA7315	Power Link	AV	80	100 kHz	IIC-2B
6IC2 H8/3216	IOP Main processor	SAV	60	400 kHz	IIC-2D
32IC601 H8/3214	Digital Sound AC3	AV	84	100 kHz	IIC1
1IC550 MSP3410D	Sound processor	AV	80	100 kHz	IIC-2C
1IC350 TDA9330H	Video processor (HOP)	V	8C	100 kHz	IIC-3_2
1IC300 TDA9178	CTI	V	40	400 kHz	IIC-3_2
1IC49 PCF8563	Real-time clock	S	A2	100 kHz	IIC1

On modes:

S - Standby mode
A - Audio mode
V - Video mode

DF Data failure

If an error occurs in the EEPROM (6IC6) that prevents output of geometry data to the TV set, the microcomputer will replace the missing data with default data stored in the EPROM (6IC3) module 999.

POR1 Power on reset failure 1

Reset or update failure of 1IC100 (TDA9321H module 999) during start up.

POR2 Power on reset failure 2

Reset or update failure of 1IC350 (TDA9330H module 999) during start up.

PDD Power down detected failure

Power down failure detected on 1IC300 (TDA9178 module 999).

CI Address configuration impossible

Error during address configuration. No address has been allocated because an excessive number of units has been connected to the Master Link.

- Disconnect all units from the link and reconnect them again one at a time.

TD ML data pulled down

The link is pulled down (Low). This error can occur in the form of a physical short circuit in the link. In the link drivers, or in the ML master/source circuit module 51 in the TV.

TU ML data pulled up

The link is pulled up (High). This error can occur in the form of a physical short circuit in the link. In the link drivers, or in the ML master/source circuit module 51 in the TV.

TI Transmission impossible

It is not possible to send data to pin 8 on the V.TAPE or AV socket, probably because of noise.

TD Data link tied down

The data link connection to pin 8 on the V.TAPE or AV socket is short circuited to ground.

ST-01 Calibration error too few positions

Not enough positions are read during Stand calibration. The Stand may be blocked.

ST-02 Calibration error too many positions

Too many positions are read during Stand calibration.

ST-03 Calibration error EEPROM

Failure when the Stand offset should be stored in the EEPROM.

ST-04 Calibration error transducer

An invalid position is read from the transducer.

ST-05 Calibration error position

Several readings from the transducer with the Stand in the same position.

IC INFORMATION

Shows the version numbers for the IC's mentioned.

MSP = 1IC550 (MSP3410D), HIP = 1IC100 (TDA9321H)

PICTP = 1IC300 (TDA9178), HOP = 1IC350 (TDA9330H)

SERVICE COUNTERS

AUDIO = audio mode, the EHT voltage is off.

BOOT COUNTER = shows how many times the set has been connected to the mains voltage.

VIDEO = audio/video mode.

ON (T*10) = shows how many times the set has been turned on from stand by.

(T*10) = The numbers are stated in interval of 10 (e.g. 10 = 100).

The number is given in full tens.

The values are stored in the EEPROM. If faulty readings of the values in the EEPROM occur all service counter values will be set to 0.

SOUND ADJUSTMENTS

LEFT and RIGHT TREBLE/BASS are for future use.

AVC = Automatic Volume Control, can be set to OFF when measuring in the audio circuits. The AVC is set to ON when the TV has been turned off by means of the mains switch.

AVC = Automatic Volume Control, can be set to OFF when measuring in the audio circuits. The AVC is set to ON when the TV has been turned off by means of the mains switch.

- MAX VOLUME LIMIT: Can e.g. be used to limit the max. volume regulations on TV's placed in hotel rooms.
- Software version for the Digital Surround Decoder (AC3). Is only shown if an AC3 decoder is present in the TV.

TELETEXT ADJUSTMENTS

WSS STATUS: Used for automatic switching to Digital Dolby Surround Sound if there is WSS codes in the signal.

BROADCAST ONLY: Only switching on signal from the TV tuner.

DETECT ON: Switching on signals from all sources TV tuner, DVD playback, V TAPE and AV sockets.

DETECT OFF: Used under certain conditions, e.g. a poor signal-to-noise ratio, the detection may fail, which may entail faulty swithing.

Selecting "B&O LANGUAGE" makes it possible to choose among 7 different teletext character sets.

- | | |
|---|---|
| 0 | English, German, Swedish, Italian, French, Portuguese, Slovak |
| 1 | Polish, German, Swedish, Italian, French, Croatian, Slovak, Rumanian |
| 2 | English, German, Swedish, Italian, French, Portuguese, Turkish |
| 3 | English, Russian, Estonian, Czech, German, Lithuanian, Ukrainian |
| 4 | English, German, Swedish, Italian, French, Portuguese, Turkish, Greek |
| 5 | English, Arabic, French |
| 6 | English, Hebrew, Arabic |

If language 3 to 6 are choosen it is not possible to receive teletext level 2.5 d/r/c/s characters.

If language 3 to 6 are choosen it is not possible to make animation in the programme list in teletext mode.

AUTO FORMAT ENABLED = for future use.

M2 INFORMATION

- Software versions for the teletext processor 1IC200 SDA6000.
- STB TIMER: Is default set to 0 but can be altered if timing problems occurs during start up with certain Set Top Boxes.
- HW STATUS: For factory use.

RESET TO DEFAULT

When this line is selected the settings will be defined.

- All TV and radio programmes are cleared.
- The V.TAPE and AV sockets are set to NONE.
- In the PICTURE ADJUSTMENT service menu the values for brilliance, colour and contrast are set to default.
- All programme lists are cleared.
- The TV SETUP TUNE menu will be shown the first time the TV is switched on.
- OPTION is set to 2.
- The PIN-code setup is not changed.

When RESET TO DEFAULT is selected a text "PLEASE WAIT 30 SEC." is displayed. While the text is displayed no operation must be done. When the text disappears Service Mode is exited.

Set the TV into St. by.

TV SERVICE MENU

In TUNER SYSTEM it is possible to set only relevant tuner systems to ON (only multi standard TV's). This is done to reduce the tuning time.

AFC ON/OFF is used in connection with adjustments but it may also be useful in other situations.

The AFC is set to ON when the TV has been turned off by means of the mains switch.

LOW TUN RANGE	45
HIGH TUN RANGE	860
LOWER BAND LIMIT	170
UPPER BAND LIMIT	450

VHF-1 CONSTANT	161
VHF-2 CONSTANT	146
UHF CONSTANT	52

These items are for factory use.

TUNER TAKEOVER	26
IF ADJUST	8
AFC STATUS	O/H
FM SOUND ADJUST	14
MODULATOR SYSTEM	B/G

These items are described in the section on adjustments.

Bus ignore mode

If an error occurs in the IIC bus system which makes the TV go into stand by every time it is attempted to be switched on, it is possible to switch on the TV in such a way that the error is ignored:

- The TV must be in stand by.
- Short-circuit the two solder pads (marked J40 coordinate 11A on PCB1).
- Press **TV**. The TV will now start up in bus ignore mode with service menu if possible.
IMPORTANT! If the TV is started up in ignore mode it may result in further damage to the TV.
- Exit ignore mode. Turn off the TV.

PIN-code

The TV has a 4 digit PIN-code, of the user's own choice, which must be entered if the TV has been disconnected from the mains for 15-30 min.

If the PIN-code is activated, and the TV has been without mains for 15-30 min., the user will be asked to enter the 4 digit PIN-code when the TV is switched on.

Before the TV is handed in to service it is a good idea to ask the customer to deactivate the PIN-code.

PIN-code active prior to service

If the PIN-code is not deactivated prior to service you must use the Service code to unlock the product.

Service code

The service code

- unlocks the product, but does not affect the pin-code setting
- gives you 12 hours service time

Entering the Service code

1. When the product asks for PIN-CODE press and hold **⏏** for 3 seconds.
2. The Master code menu appears.
3. Enter the Service code: 1 1 1 1.

Important notice concerning Service time

The service time is active as long as the product is connected to the mains, including Standby.

To obtain maximum service time:

Only connect the product to the mains while you are performing actual service on the product.

When the service time is expired, the product can only be unlocked by entering the PIN-code or the Master code.

Registration of the modules

The modules will be registered to the product in the following situations:

- the product has been connected to the mains for more than 12 hours, including Standby time.
- the PIN-code is activated or deactivated.

PIN-code deactivated by customer prior to service

With the PIN-code deactivated prior to service you must be aware of the modules will be registered to the product in the following situations :

- the product has been connected to the mains for more than 12 hours, including Standby time.
- the PIN-code is activated or deactivated.

The registration of modules in the product can only be changed at Bang & Olufsen, Struer.

Activate the PIN-code

Select the TV SETUP menu.

Press **◀** twice and then **STOP** to bring up the PINCODE SETUP menu.

Enter the 4 digit Pin-code. Re-enter the code to confirm it and press **GO**.

If you want to change or delete the PIN-code, enter the correct PIN-code and press **GO**.

It is now possible to change the PIN-code or delete the PIN-code.

Enter the PIN-code

If the PIN-code is activated and the TV is disconnected from the mains for more than 15-30 minutes, a PINCODE menu appears as soon as the TV is switched on. Enter the PIN-code, and the TV starts again.

If the PIN-code has been forgotten

If the PIN-code has been forgotten (5 tries within 3 hours with the mains connected), the only way to unlock the TV again is by entering a 5 digit Master-code.

The Master-code is ordered by sending a request either via the Retail System or on the Master-code formula. If non of these options are available please contact Bang & Olufsen.

When the TV prompts for a PIN-code, press and hold **◀** down to bring up the MASTERCODE menu.

Enter the Master-code and press **GO**. This will deactivate the PIN-code and reactivate the TV.

ServiceTool**Flash- programming of the M2 processor**

It is not possible to built-in a Set-top-Box Controller module in the chassis.

The Set-top-Box Controller is software (STB-C software and STB-C table), which has to be flash-programmed into the M2 processor.

For this purpose Bang & Olufsen has developed a "ServiceTool" which is a PC/LapTop application for installation/updating the STB-C software.

Tools needed for Flash-programming

- PC/LapTop with Bang & Olufsen "ServiceTool" application.
ServiceTool CD-ROM part no: 3658949.
It can also be downloaded from the Retail System, file size is app. 22MB in September 2003.
- Cable kit part no. 3375397.

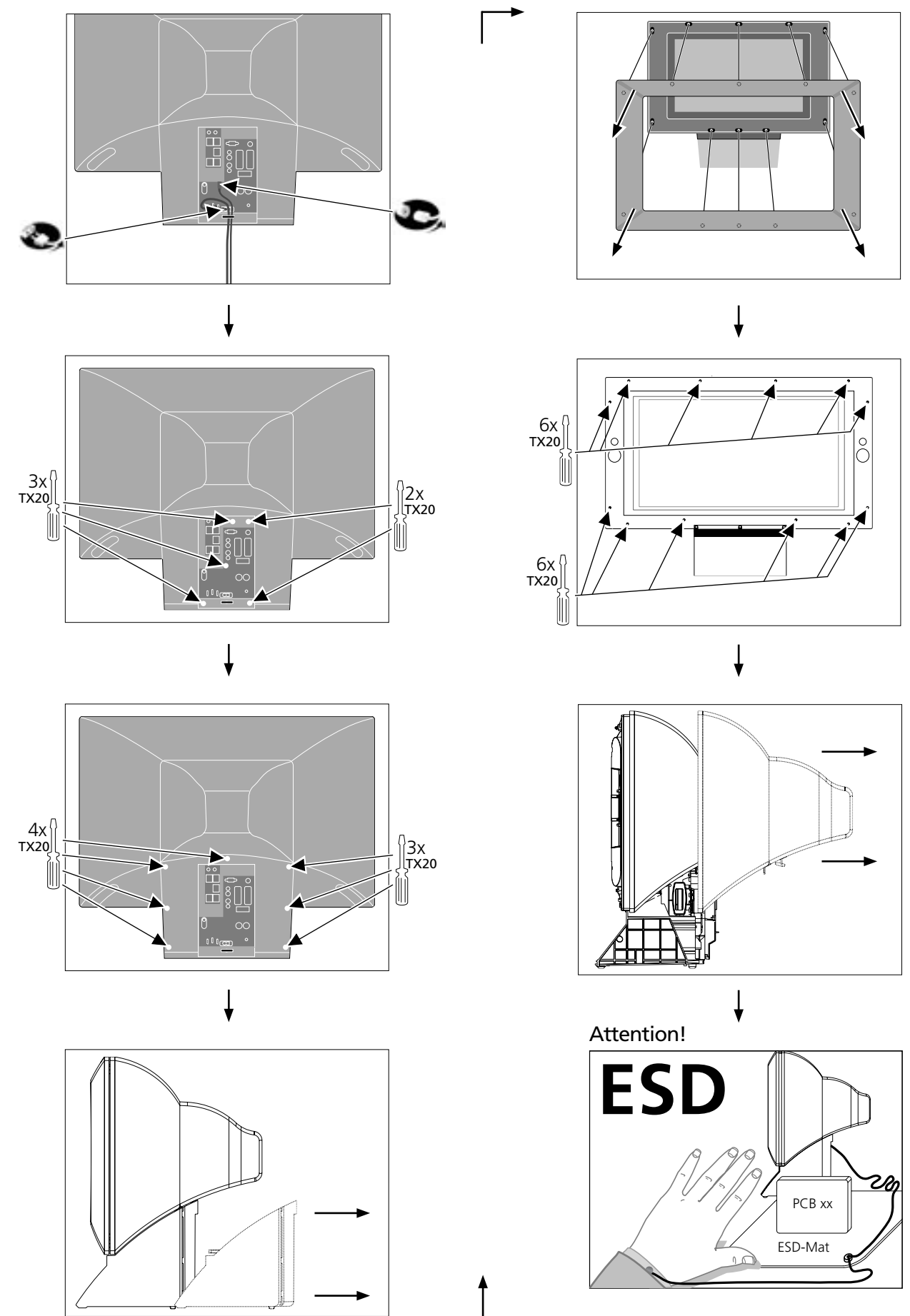
Flash-programming - M2 software or STB-C software

1. Disconnect the mains from the Television.
2. Connect cable to IR Output.
3. Start the "ServiceTool", choose "Products" and follow the on-screen instruction on the PC.

Note!

Software versions can be checked in the "Service Menu".

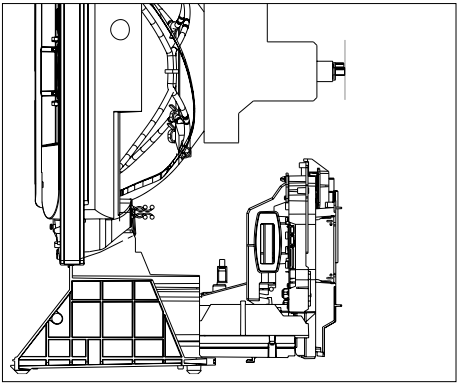
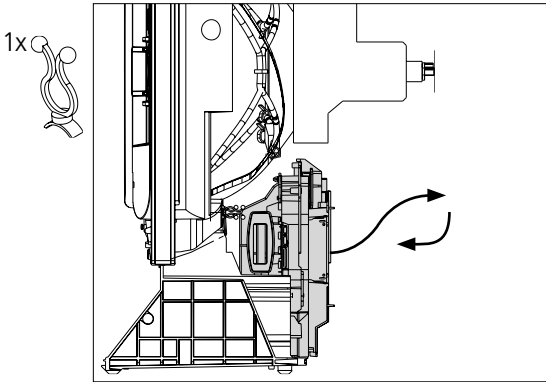
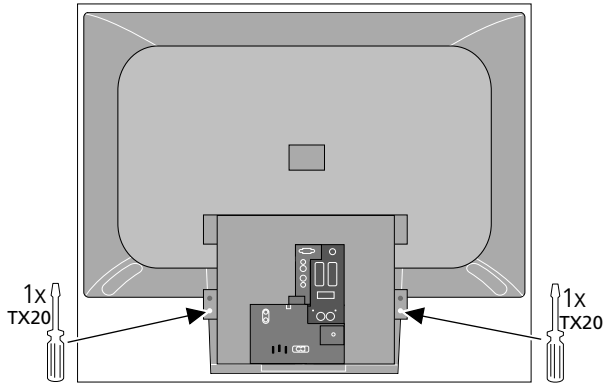
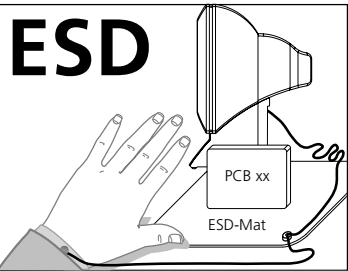
Service mode



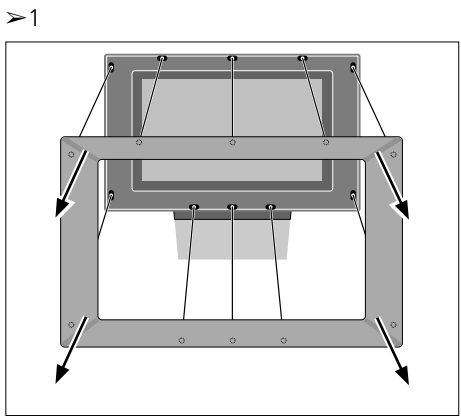
Main chassis in service position

➡ 6.1 Service mode

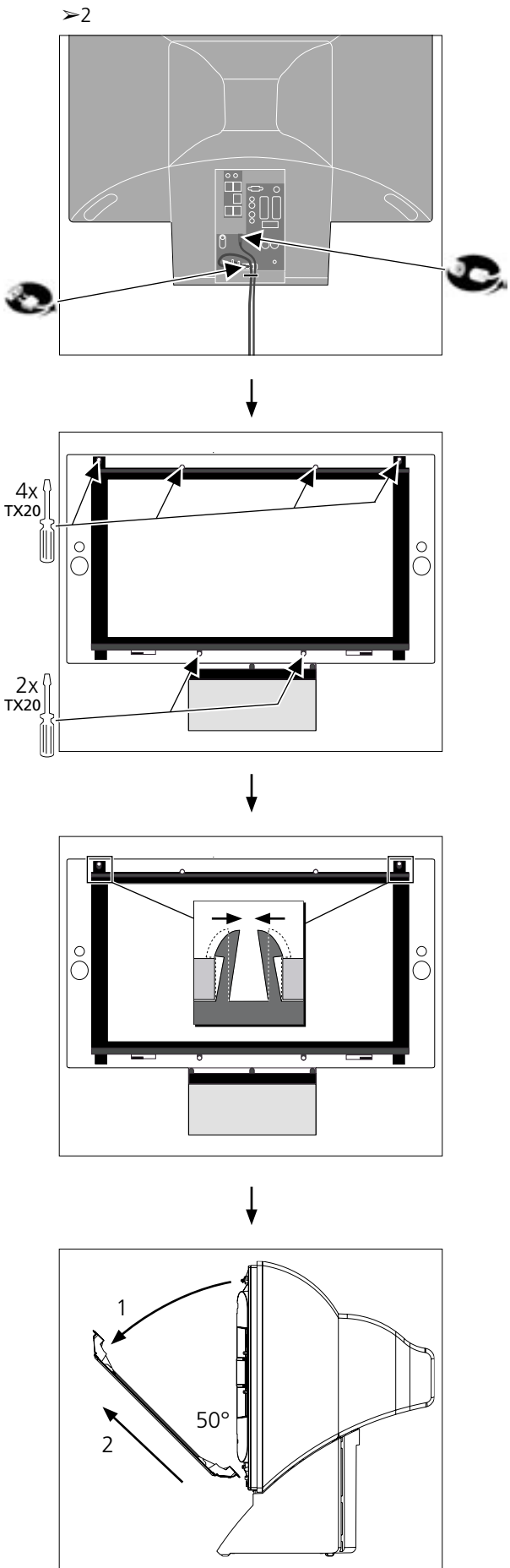
Attention!



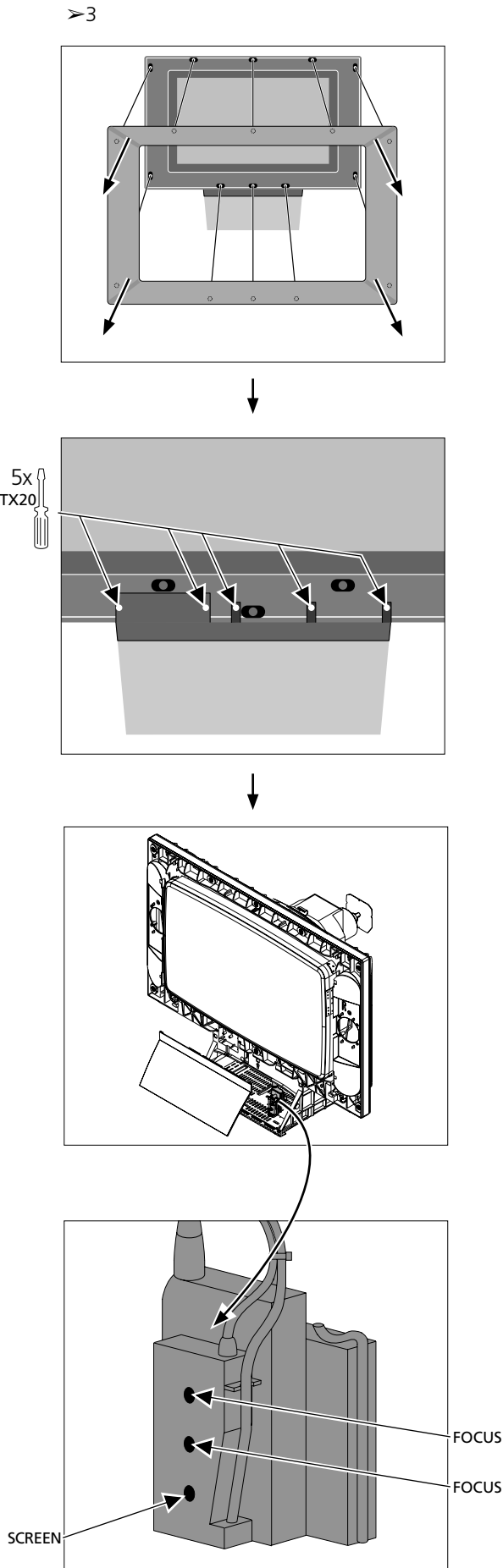
Removing speaker cover



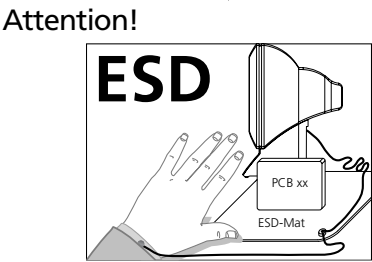
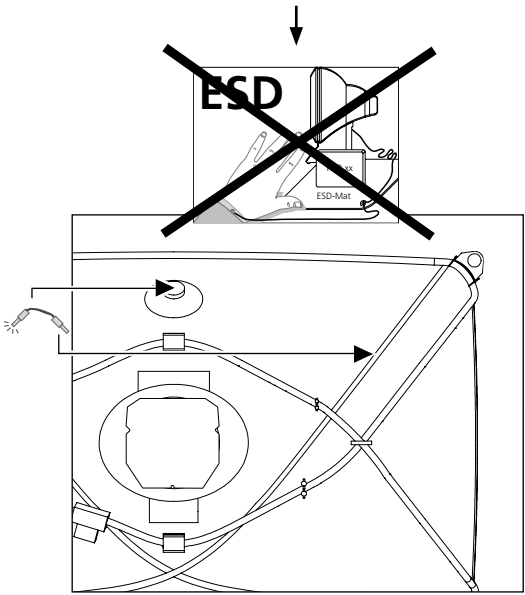
Removing contrast screen



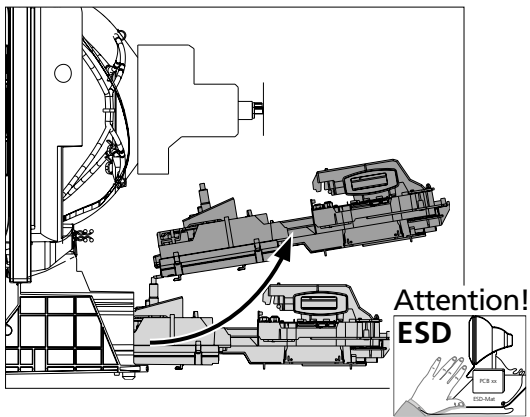
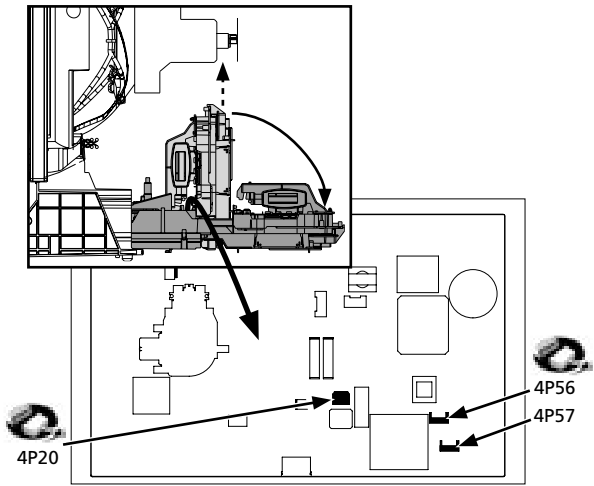
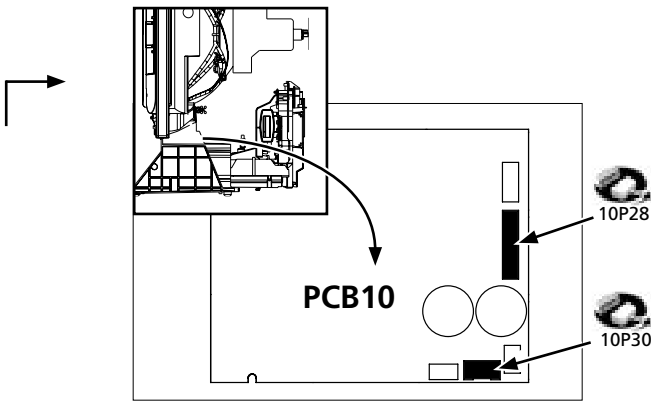
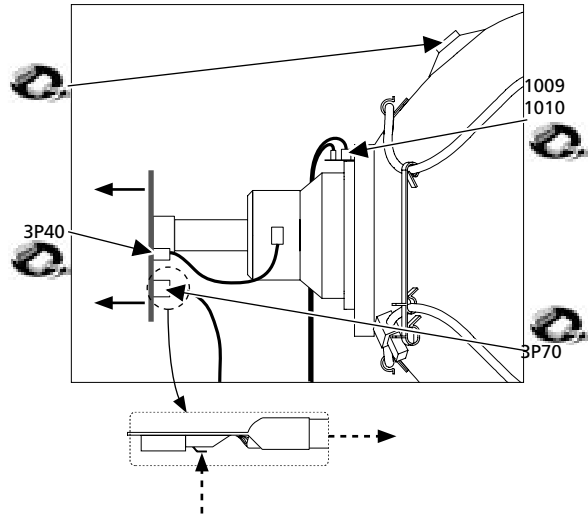
Placement of potentiometer



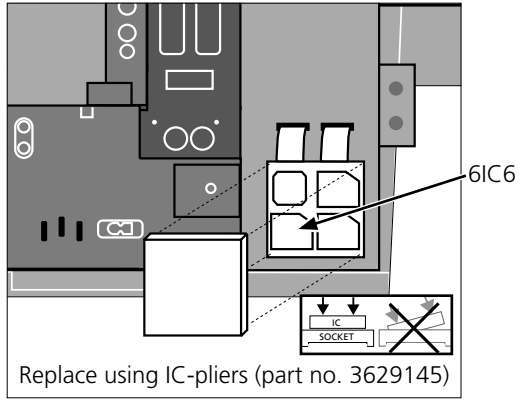
- Main chassis
- ➔ 6.1 Service mode
 - ➔ 6.2 Main chassis in service position



- ➔ 8.4 PCB32, if mounted
- ➔ 8.5 PCB51, if mounted
- ➔ 8.7 PCB63, if mounted

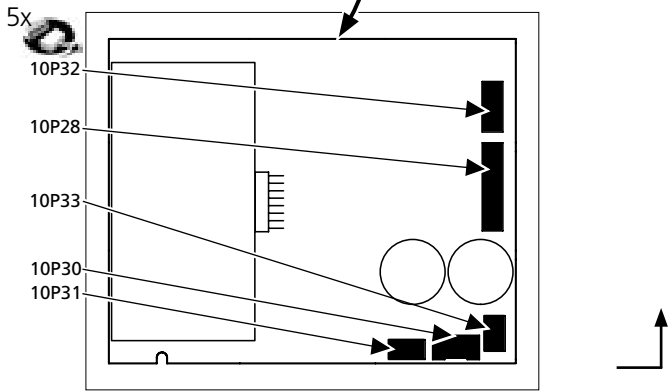
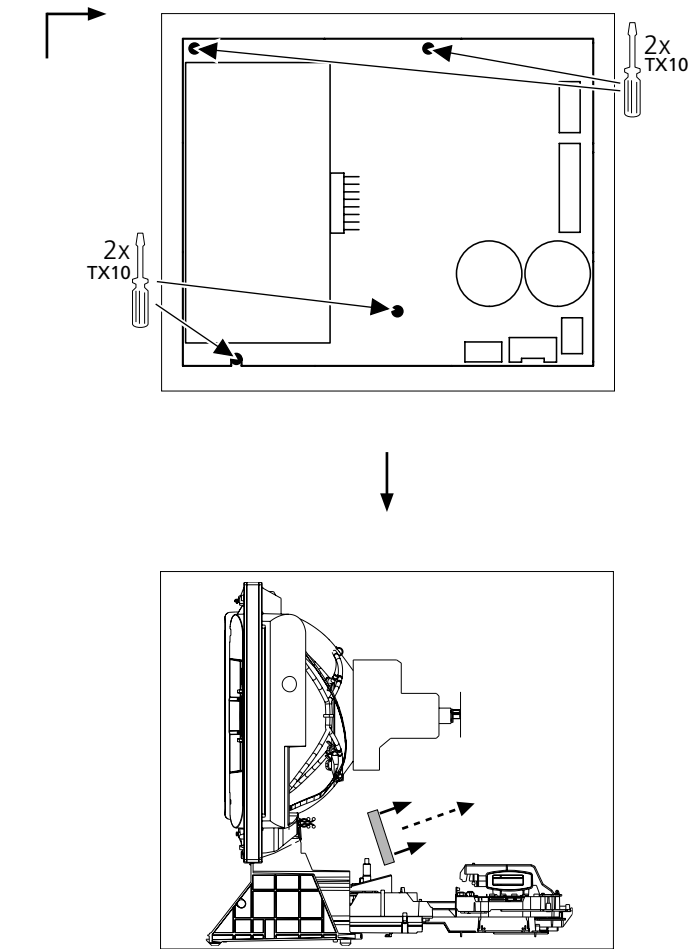
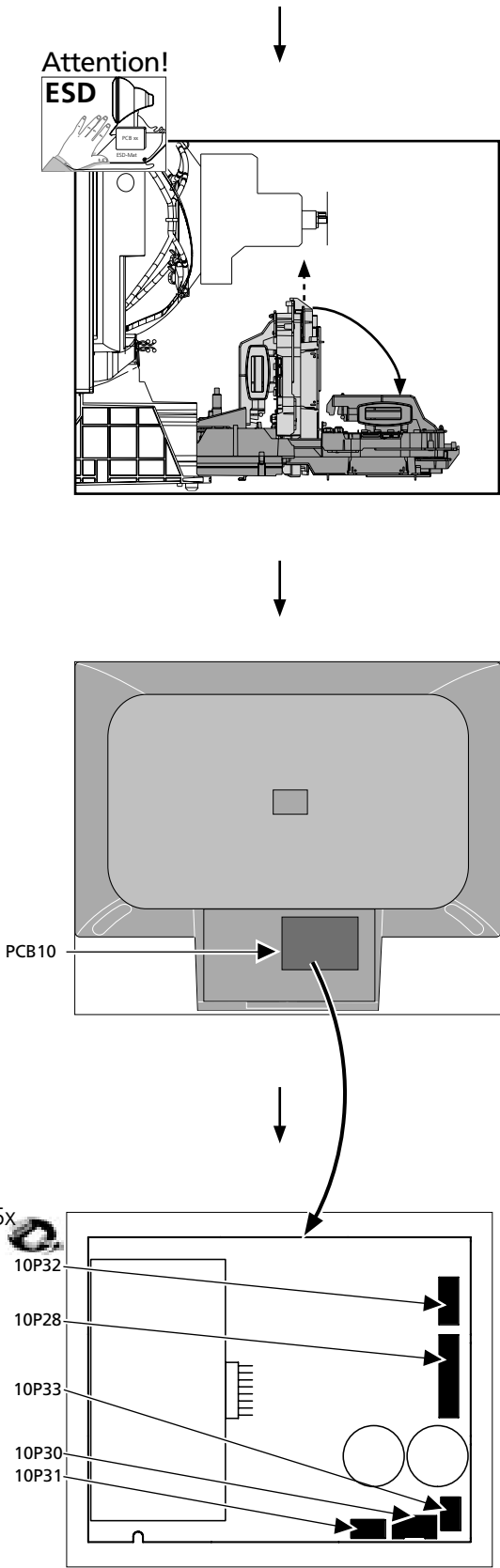


Please note: transfer 6IC6

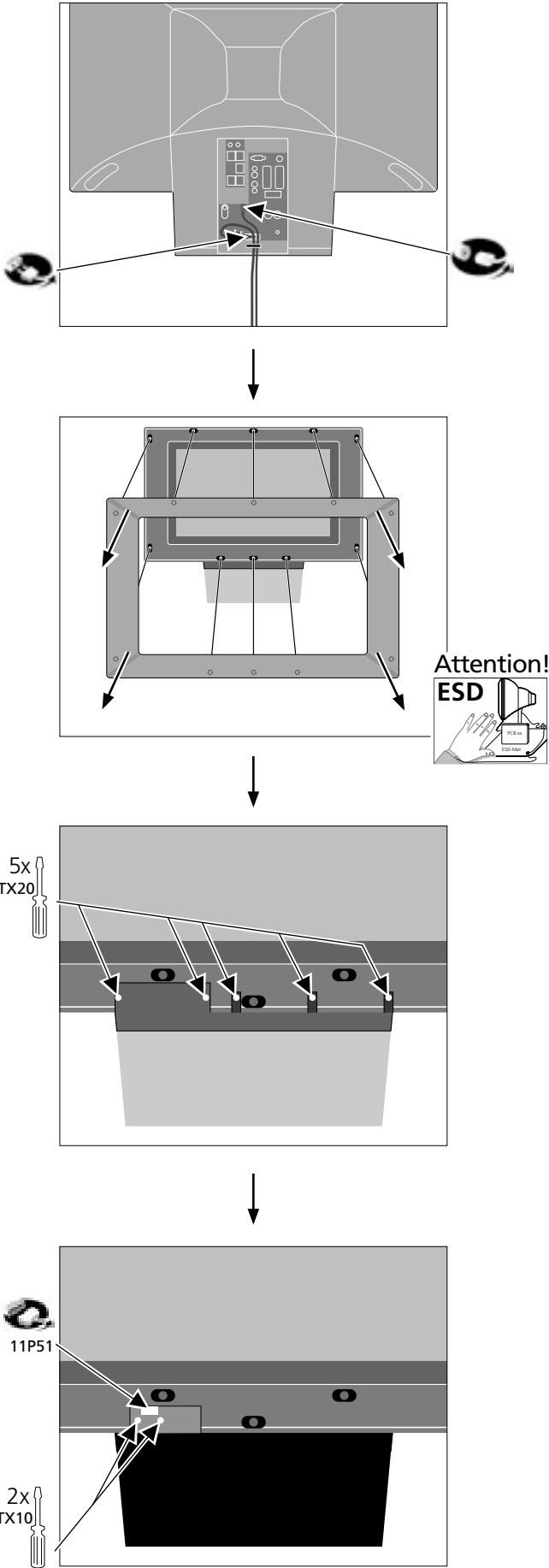


PCB10, Sound Output module

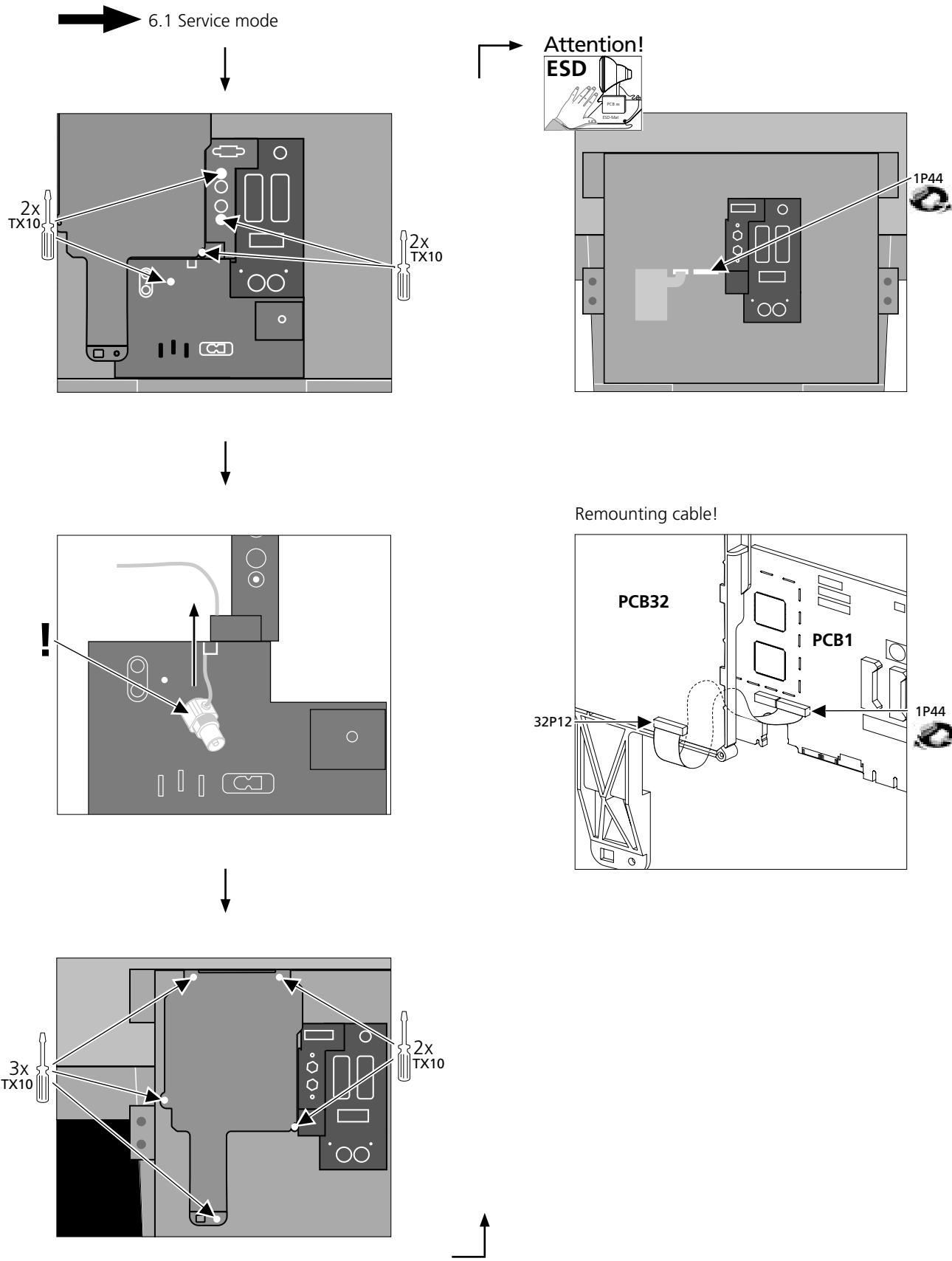
- ➡ 6.1 Service mode
- ➡ 6.2 Main chassis in service position



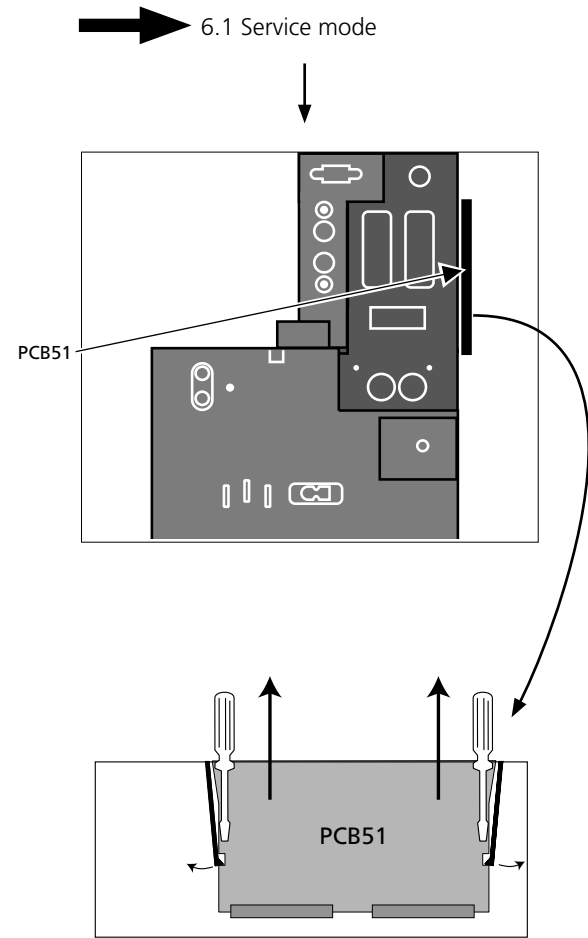
PCB11, IR receiver module



PCB32, AC3 module

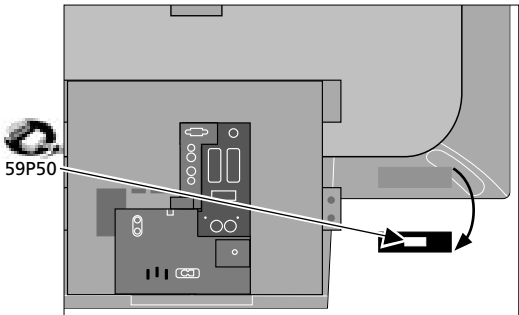
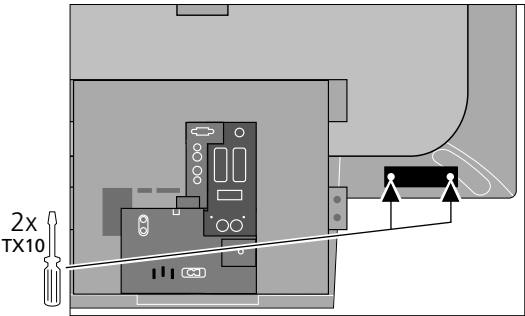


PCB51, Masterlink module

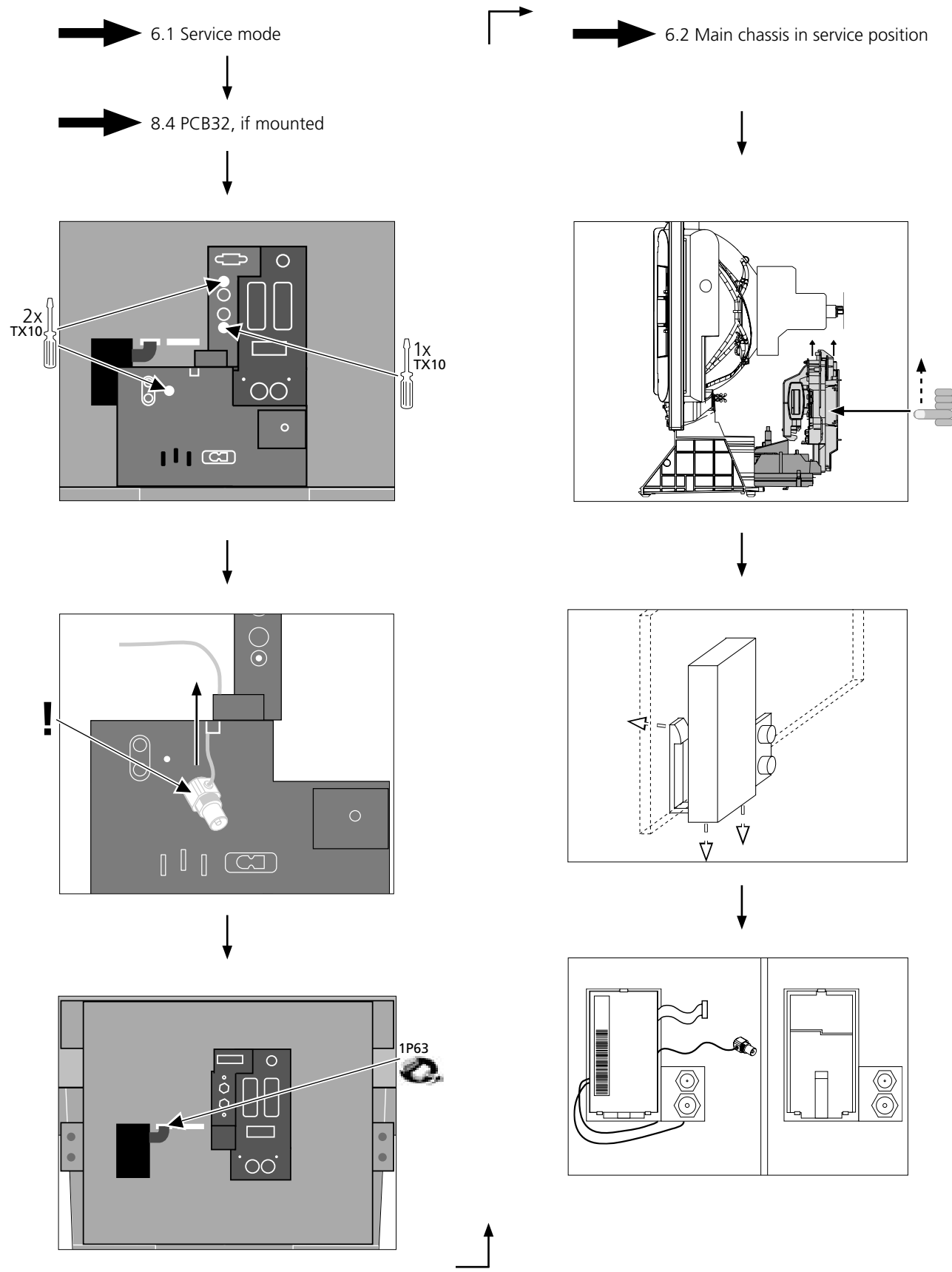


PCB59, Camcorder interface module

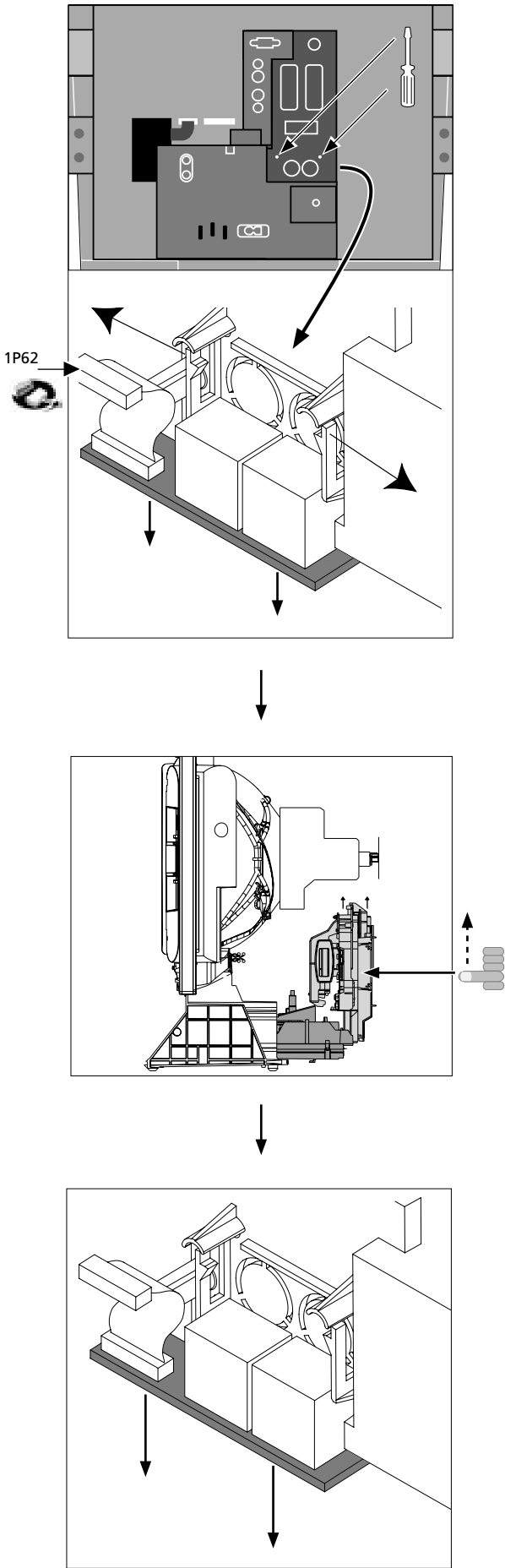
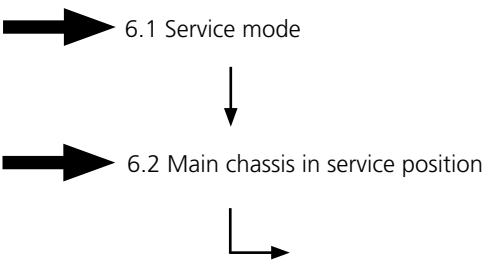
➡ 6.1 Service mode



PCB63, Modulator module

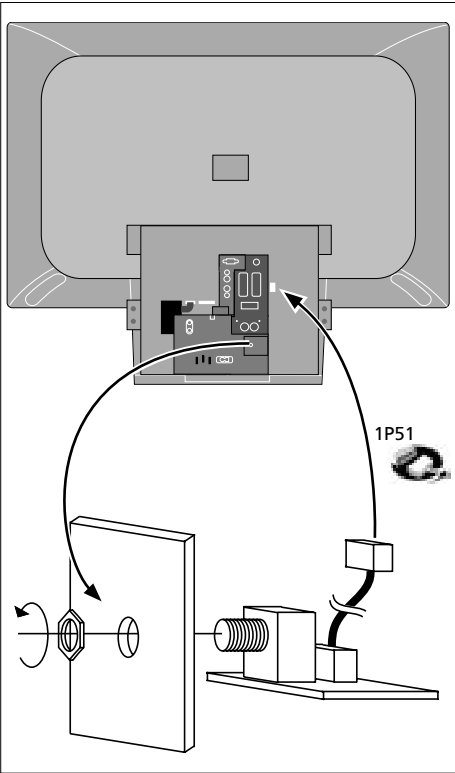


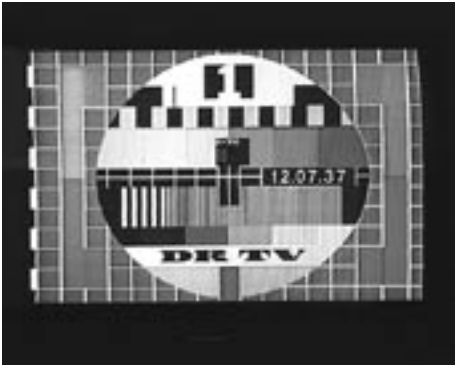
PCB64, Powerlink module



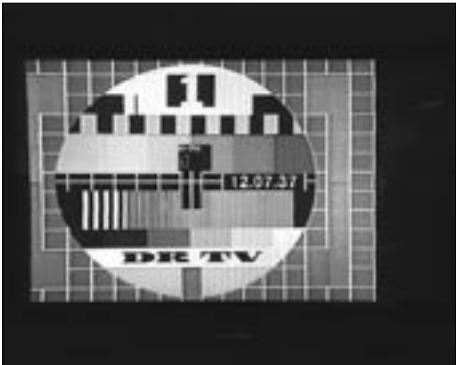
PCB85, Mini jack f. STB-Controller

➡ 6.1 Service mode

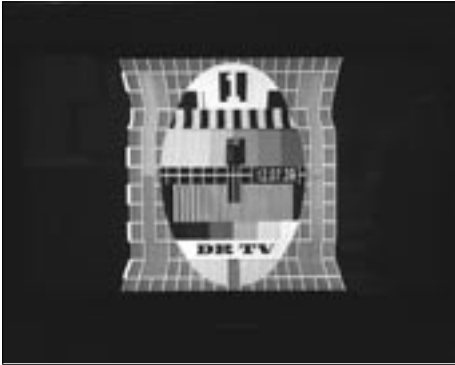




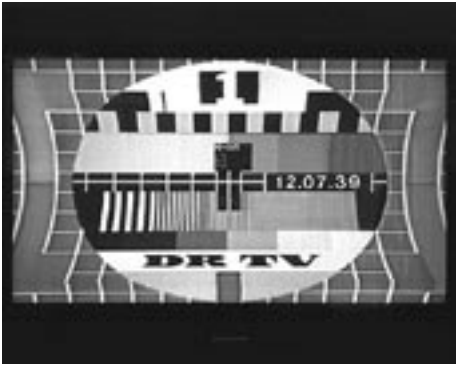
H-PH 00



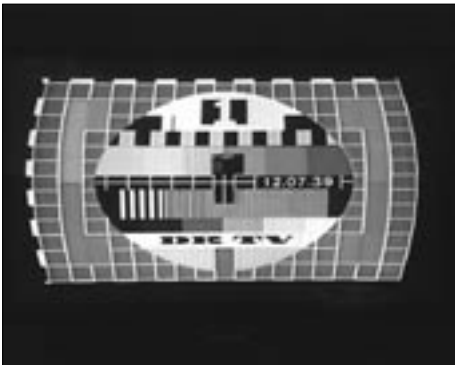
H-PH 63



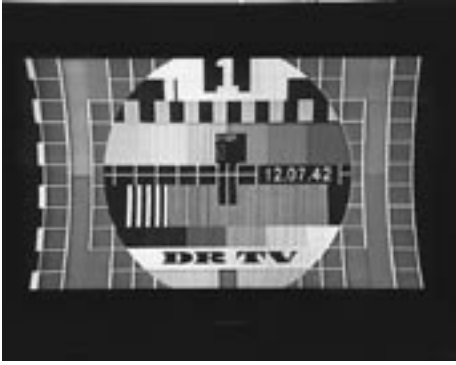
H-AM 00



H-AM 63



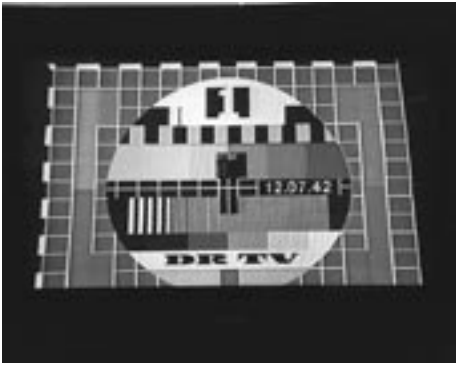
V-AM 00



V-AM 63



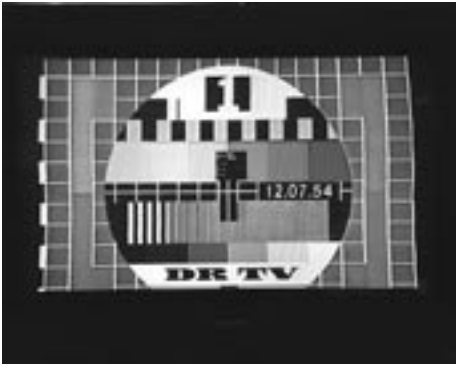
V-SH 00



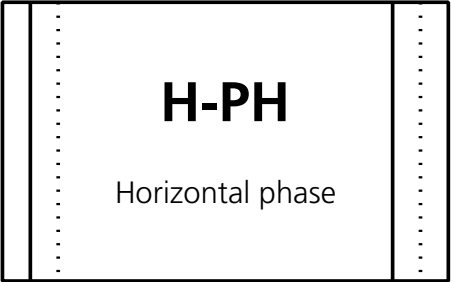
V-SH 63



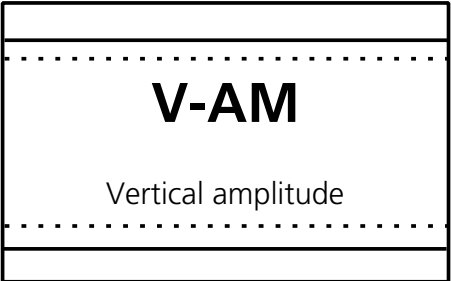
V-SL 00



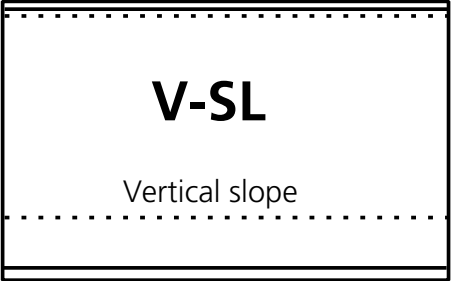
V-SL 63



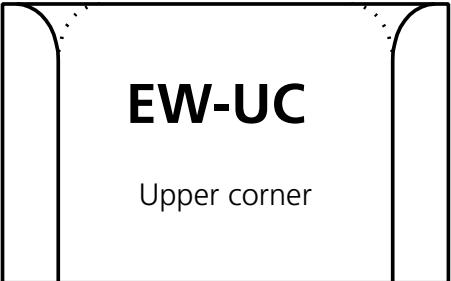
H-PH
Horizontal phase



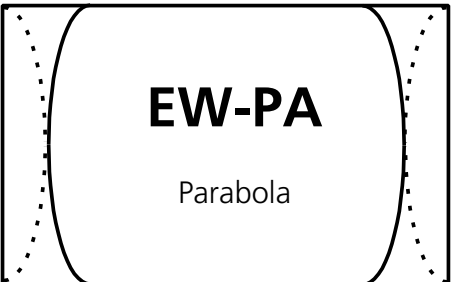
V-AM
Vertical amplitude



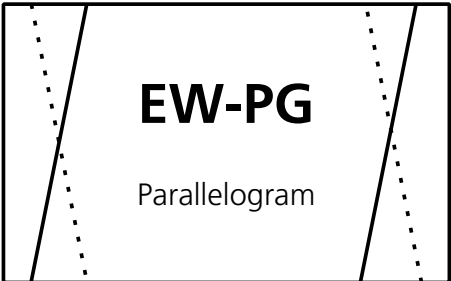
V-SL
Vertical slope



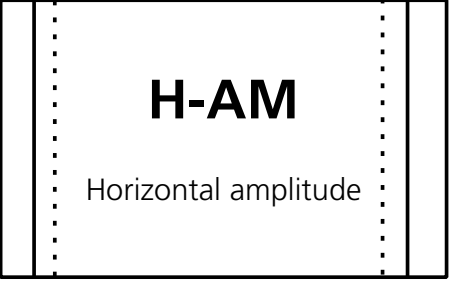
EW-UC
Upper corner



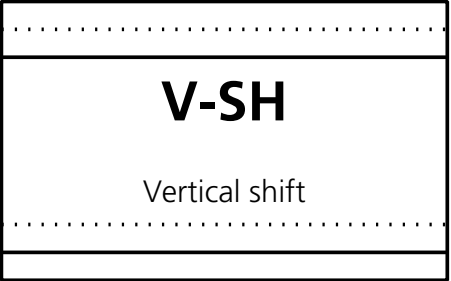
EW-PA
Parabola



EW-PG
Parallelogram



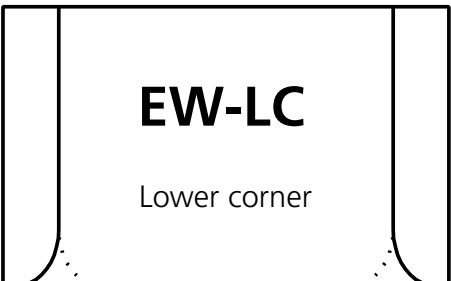
H-AM
Horizontal amplitude



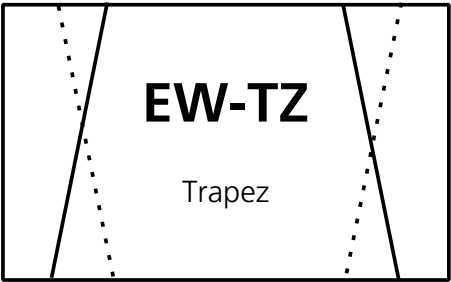
V-SH
Vertical shift

Filled line = maximum setting

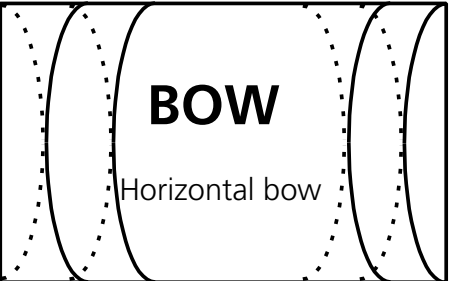
Dashed line = minimum setting



EW-LC
Lower corner

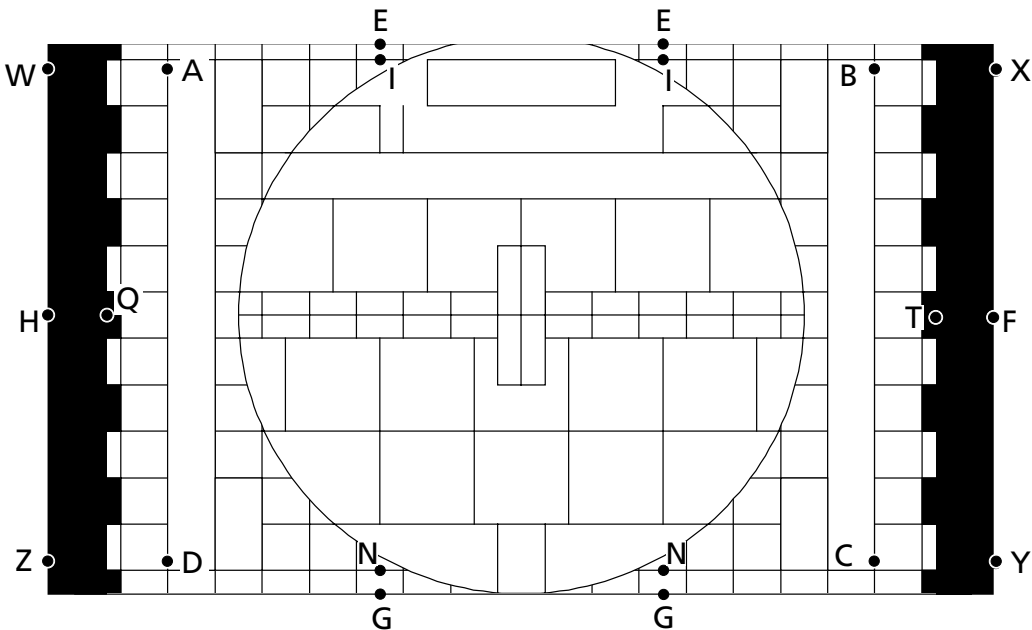


EW-TZ
Trapez

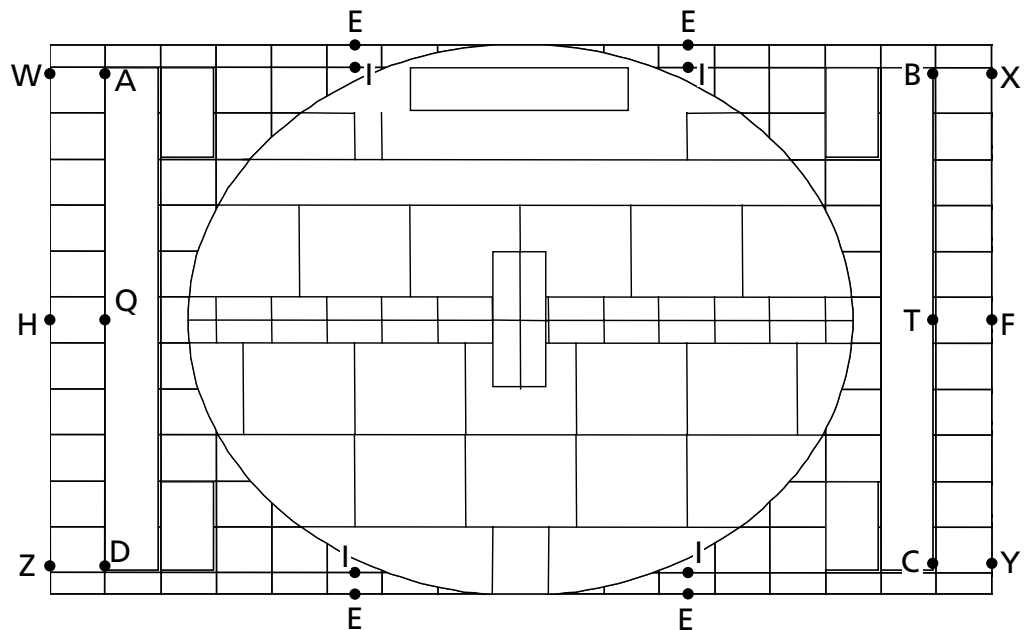


BOW
Horizontal bow

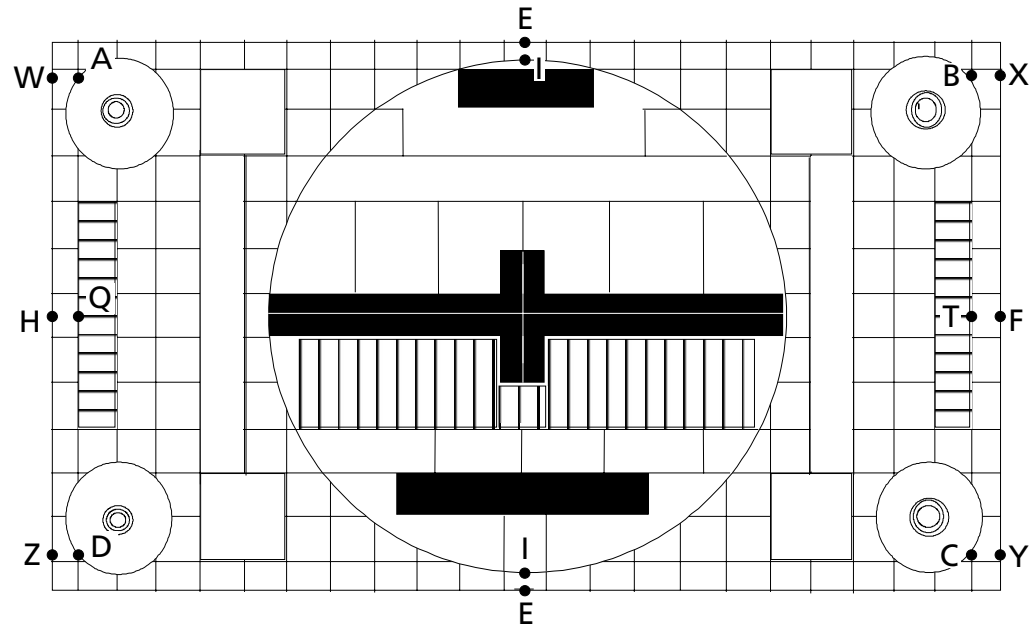
Format 1 (15:9)



Format 1 (16:9)



Format 3 (16:9)



INSULATION TEST

Each set must be insulation tested after having been dismantled.

Make the test when the set has been reassembled and is ready to be returned to the customer.

Flashovers must not occur during the testing procedure!

Make the insulation test as follows:

Short-circuit the two pins of the mains plug and connect them to one of the terminals of the insulation tester. Connect the other terminal to ground on the VHF/UHF aerial socket.

NOTE!

To avoid damaging the set it is essential that both terminals of the insulation tester have good contact.

Slowly turn the voltage control of the insulation tester until a voltage of 2.5 kV is obtained. Maintain that voltage for one second, then slowly turn it down again.

ISOLATIONSPRÜFUNG

Nach einer Zerlegung ist bei jedem Gerät eine Isolationsprüfung vorzunehmen. Die Prüfung wird dann ausgeführt, wenn das Gerät wieder vollständig zusammengebaut und zur Auslieferung an den Kunden bereit ist.

Überschläge dürfen während der Prüfung nicht vorkommen!

Die Isolationsprüfung in folgender Weise durchführen:

Die beiden Steckerstifte am Netz-stecker kurzschließen und an eine der Anschlußklemmen des Isolationsprüfers anschließen. Die andere Anschlußklemme an die Masse des VHF/UHF Antennenanschlusses anschließen.

ACHTUNG!

Um Beschädigungen des Gerätes zu vermeiden, ist es wichtig, daß beide Anschlußklemmen des Isolationsprüfers einen sehr guten Kontakt haben.

Die Spannungsregelung des Isolationsprüfers langsam nach oben drehen, bis eine Spannung von 2,5 kV erreicht wird. Diese Einstellung 1 Sekund aufrechterhalten, und anschließend die Spannung wieder langsam nach unten drehen.